The RUBBER AGE

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10 PER CENT INCREASE IN EXPORTS GRANTED DESPITE FIRM EFFORTS

Plea of American Rubber Manufacturers Ignored When Only 10% Additional Exports Allowed on August 1—"Careful Consideration" Being Given Rubber Association Protest

NEW YORK, August 1, 1925.—The official increase in exportable allowance of crude rubber was announced yesterday in London as 10 per cent. It was hoped that at the last minute the protest of the Rubber Association would be heeded and that a larger percentage would be allowed and there is every indication that no immediate relief from the present high prices of crude rubber is in sight for many months.

With this 10% the total percentage of standard production exportable during the next quarter is 75% and even with the additional release of 6,000 tons of uncouponed rubber from the Federated Malay States which were announced last week on the payment of a duty of 1s. per pound, there is every indication that the short supply of spot rubber will not be materially increased for the next two months. Supplies under the new release can not reach London before the middle of September and the demand for spot rubber will in the meantime tend to keep up prices.

"Logically," says Zorn & Leigh-Hunt, London Rubber Brokers, "the discrepancy between spot price and say, three months forward, should be greater than it is, for although it looks as if supplies would be very short for the remainder of the year, the famine in spot obtaining throughout June, July and August, cannot be regarded as permanent. Logic, however, does not rule the market but sentiment, and sentiment is undoubtedly bullish—at present."

Following the meeting held recently in Washington by a committee from the Rubber Association, Secretary Kellogg cabled Ambassador Houghton in London who presented the American attitude on restriction to Foreign Minister Chamberlain. Much criticism was leveled at the United States for the method used in attempting to secure larger supplies of rubber at reasonable prices and the matter was taken up in the House of Commons by L. C. Amery, Secretary for the Colonies, who denied that restriction was responsible for the undue rise in prices stating that the greater part of the requirements for the next year have been made at moderate prices. He blamed speculators for the high prices and said that they were only temporary.

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RUBBER SHIPS REACH PORT IN AMPLE TIME

For the last week the rubber industry has been watching with interest the race with time which several ships, laden with rubber have been making so as to land in port before the end of July. The rubber was for July delivery and failure to get to New York before the end of the month would have meant the loss of thousands of dollars to the consignees.

The ships were pushed as hard as possible and two of them arrived within the last few days, that is on the morning of July 31 at Pier 4, Brooklyn. The ships were the Siberian Prince and the Menelaus, both from Singapore. The third ship, the Kansas, was reported about a thousand miles away at the same time and is not expected for several days yet.

It is reported that there are 6,500 tons of rubber on these ships valued at over $14,000,000. The Siberian Prince was consigned to Boston but was diverted to New York by radio. The Menelaus, however, landed in Boston on July 30 and the Boston cargo was removed, following which the ship raced to New York.

PRODUCTION CURTAILMENT NOT PLANNED IN AKRON

Fears that the big rubber companies would have to curtail production and begin to lay off many of their men ought to be put to rest by reports from some of the most prominent Akron companies stating that a sufficient supply of raw material is available to provide for even greater demands for tires than have been received during the first six months of this year, which period has produced highly gratifying sales and profits.

While Akron cannot regard the problem of securing crude rubber too lightly, there seems to be no immediate cause for anxiety. Although the retail prices of tires and tubes have been boosted several times this year, prices were reduced considerably last year, and the present level is very little higher than the price early in 1924.

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HOOD RUBBER SHOWS NEW SALES RECORD

According to the *Wall Street Journal* the first quarter of the Hood Rubber Co.'s current fiscal year made a new record of sales volume for that period, topping even the corresponding quarter of 1920, when prices were abnormally inflated. For the three months ended June 30, sales were some 50% above the corresponding period of 1924. With this flying start, only a most drastic slump in ousiness could prevent the company from making a new record in business for the full year, and exceeding the $30,000,000 mark in sales for the first time.

Continuing the tendency manifested last year, tires have accounted for a growing proportion of this volume. The plant is now turning out 3,100 casings a day, but even at this pace is finding it difficult to keep up with orders. Dealers and branches are under, rather than overstocked, and express shipments are sometimes necessary to fill their requirements. In other departments, stocks of finished goods are likewise normal. The company's entire finished goods inventory is slightly under that of a year ago, despite the recent increases in prices.

Gain in profits has been commensurate with the increase in sales volume. With business continuing at the present rate final net for the fiscal year to end March 31, 1926, will be well above the $6.82 on the company's 120,000 shares of no-par common stock shown in the last fiscal year. The management is making no predictions, however. The crude rubber market presents such uncertainties for the next few months that manufacturers in general are displaying a cautious attitude.

TIRE DEALERS WARNED AGAINST OVERSTOCKING

The National Tire Dealer's Association, through its president, G. J. Burger, has sent out a letter to all its members urging caution against overstocking under present conditions in the crude rubber market which has resulted in four tire price increases within three months. Mr. Burger advises dealers to carry only a 40-day stock so as not to be caught with high priced stock in case of a decline.

The letter stated: "In the bulletins we have sent you in regards to tire prices, we have advised members to purchase their requirements only for a forty day stock turn. Our advice remains the same at this most important time. Buy only for a forty day stock turn at the outside. Our reasons for making this statement is due to the fact that this industry has had four advances in a ninety day period. There must be something serious in the crude rubber situation to cause these sensational advances. The rubber manufacturers have been urging their dealers only to buy for immediate requirements. Will dealers go beyond this advice and gamble on possibilities? It is far better to take a profit on a forty day stock turn than to find yourself overloaded when the market goes the other way."

ROGER W. BABSON SEES RUBBER BUBBLE BREAK

In a statement recently issued to the press, Roger W. Babson, the noted expert on economic conditions, predicted that many previous attempts to control markets on commodities have burst and he sees no reason why the present situation in rubber should not also break. He said in part:

"Although England, from an ethical point of view, may be justified in what she has done, yet economists are very doubtful how long England can continue this policy. At several times in history, attempts have been made to control the market on wheat, corn, coffee, tea, copper, and even bullion.

"All of these corners were successful for a time, but they ultimately blew up with a tremendous resultant drop in the prices of the commodity. Economists state that very likely the same result will happen in connection with this rubber pool."

Dunlop Plans Fabric Addition

Reports from Utica, N. Y., state that the fabric mill formerly owned by the Utica Spinning Co., and bought by the Dunlop Tire & Rubber Corp., several years ago, will shortly erect an addition to its plant. The mill has been turning out about 100,000 pounds of fabric a week and demand is increasing steadily. Over 600 workers are employed with a weekly pay roll of $12,000.

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DROP CENTER RIMS ADOPTED BY FORD ACCORDING TO RECENT AKRON REPORTS

Adoption of This Rim Will Mean Changeover of Equipment on Part of Manufacturers—Rim Sponsored by Dunlop Who Gives Its Advantages

A report from Akron states that several rubber companies have received orders from the Ford Motor Company for tubes which will require the use of drop center rims. It is known that Ford has been experimenting with this type rim for some time and his decision to adopt this rim will mean that other manufacturers of small cars will follow suit.

Since the advocacy of these rims several years ago by Dunlop there has been much speculation in the industry in this country as to whether or not they would be adopted. This news, therefore, comes out of a clear sky and will mean that the many tire manufacturers now making tires and tubes for Ford will soon be called on for equipment designed for these rims.

It will be recalled that the Dunlop Tire & Rubber Corp., Buffalo, N. Y., gave out a statement last year in which it was stated that this rim is older than the automobile industry and was first used with the Dunlop-Welch bicycle tire in 1890. Later it came into prominence during the war in connection with cushioning airplanes against the uneven surface of landing fields.

The statement continues: "The drop center rim is made in a single piece with no split or loose flange. After the balloon tire is put on and inflated the beads slip into their proper place on the base. All that is necessary to remove the tire is to deflate it and press the beads together, the well of the rim permitting sufficient slack to allow one bead to be lifted out from the rim.

"Regarding the relation of tire section to rim base width, it is known that the tire with the widest rim and greatest angle of stability gives the least "roll." Although the wide rim base is advocated and proved advantageous with the balloon tire, this does not mean that these rims need to be made heavier than those of present standard practice. It is claimed that the drop center rim is a better structure than present rims and the actual rim weight can be reduced by about seven pounds.

"Other points in favor of the drop center rim are that it gives six to eight per cent additional increase of air space for the tube compared to the present standard type rim. It eliminates the use of loose flaps. It also allows the valve stem to pass through at right angles to the sloping side of the rim recess and gives an ideal condition for removing the dust cap and applying the inflating hose. Two base diameters of drop center rims 20 and 21 inches probably will meet all the needs of automobile manufacturers.

"To prevent the possibility of damaging the tube or casing by running deflated there is embodied in the tire an additional bead situated low down on the side wall and resting on the rounded flanges of the rim."

Kitchel Sails for Europe

A. F. Kitchel, sales manager of Binney & Smith Co., N. Y., sailed for Europe on Saturday, July 25, on the *Majestic*. Mr. Kitchel was accompanied by Mrs. Kitchel and expects to be gone until about August 20. He will look after certain export problems in London and will probably spend a few days in Paris.

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MASON SALES $5,514,951 FOR FIRST SIX MONTHS

President W. A. Cluff of the Mason Tire & Rubber Company, Kent, Ohio, reports that gross sales of that company amounted to $5,514,951 for the first six months of 1925 as compared with $8,500,000, which represented the total sales for all of last year.

President Cluff also announced that the company had enough crude rubber purchased at half the present market price to provide 20 per cent more tires in the last six months of this year.

With the company behind on orders for 60,000 tires and 100,000 tubes, he predicted an even greater margin of profit for the coming six months. Assets were listed at $1,545,452, which is $121,951 greater than current liabilities. The total sum set aside, $167,845, included $94,365 for depreciation.

Officials deny that the progress of production was affected in any way by minor labor troubles reported at Kent during July.

Intercontinental Production

In the first half of 1925 Intercontinental Rubber Company produced and exported 3,000,000 pounds of guayule rubber, compared with 3,076,200 in the year 1924. All this rubber came from the Mexican subsidiary of Intercontinental. Last year the company operated three factories in Mexico, and, with the fourth factory coming into production shortly, it is expected production will reach about 6,000,000 pounds this year.

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SOVIET STANDARDIZES PNEUMATICS AND SOLIDS

According to an announcement in the *Moscow Trade and Industry Gazette* of June 13, 1925, the Council of Labor and Defense has established standard types and sizes of automobiles and motorcycle tires, which henceforth shall be used exclusively in Soviet Russia. The prescribed sizes are as follows:

PNEUMATIC TIRES *Clincher Straightsides*		SOLID TIRES		
Inch	Metric	Inch	Inch	Metric
26 x 2½	710 x 90	32 x 4½	34 x 4	880 x 120
28 x 3	765 x 105		36 x 6	900 x 120
30 x 3½	820 x 120		36 x 5	930 x 120
	820 x 135		36 x 6	1010 x 120
	815 x 105		40 x 5	1050 x 120
	880 x 120		40 x 6	1060 x 120
				1030 x 140

The manufacture and importation of automobiles, trucks and motorcycles, requiring tires of other sizes than those mentioned is prohibited, except in indispensable cases when the importation of such vehicles may be permitted upon the agreement of certain Commissariats. The manufacture of non-standard sizes of tires is permitted in Russia as long as automobiles, trucks, and motorcycles fitted with rims requiring tires of non-standard sizes are in use on the territory of the Union of Soviet Russia, i.e., until such automobiles and motorcycles are completely worn out.

Quinby and Ching to Speak

Dr. R. S. Quinby of the Hood Rubber Co., New York, and C. S. Ching of the U. S. Rubber Co., New York, will be among the speakers at the Eighth Annual Industrial Conference to be held at Silver Bay, New York, August 27-30. The Conference, which is under the auspices of the Industrial Department of the Young Men's Christian Association, will consider problems of human relations in industry.

According to R. D. Benson of the Tide Water Oil Co., N. Y., the chairman of the conference board, "a serious discussion of this long-neglected problem is comparatively new, but the strides made since the close of the World War are so enormous that the necessity for a conference like the one now held annually at Silver Bay is now well-established.. .. .. Here knowledge based on experience is discussed, and great benefit is derived by employer and employee alike, from the frank, open, friendly discussion of their mutual problems."

Non-Sticking Liners Patented

Patents were granted on June 23, 1925, to Abram E. Falor, John B. Dickson and Fred H. Amon of Akron, Ohio, on a Non-Sticking Liner of Rubber.

The patentees have assigned their idea to the B. F. Goodrich Co. at Akron, Ohio.

The Cleveland Liner & Mfg. Co. of Cleveland, Ohio, is the sole licensee for the processing of material under this patent and they are known to the Trade as Blue Processed Liners.

Materials ranging from light sheetings to heavy ducks can be handled in a very satisfactory manner and many rubber companies have found it advantageous to use these Processed Liners on account of the marked saving which they show.

MAY TIRE SHIPMENTS EXCEED PRODUCTION

For the last several years the period of the year during which shipments of tires have exceeded production has advanced about a month and this year, according to the latest data issued by the Rubber Association of America, this period was reached at the end of April and continued through May. Last year it was reached about the middle of June and lasted until the last week in September and in 1923 it started on Aug. 1 and lasted until the end of the year.

This condition, as represented by the statistics for this year, indicates the unusual demand for tires which manufacturers met with in April and May, and is not altogether due to balloon tires as might be expected. In fact at the end of May the production of balloons exceeded shipments by 319,730.

The total production during May of tires showed only an increase of 2% over April while shipments were 8% over the previous month. Shipments of balloons have increased steadily from 563,315 in January to 1,484,877 in May. While balloon tires have increased in production every month high pressure cords and fabric tires have decreased during both April and May. Whereas 2,000,939 cords were made in April the production had dropped to 1,815,969 in May and likewise 738,625 fabrics were manufactured in April and only 480,339 in May.

Stocks of solid and cushion tires have begun to dwindle, a reduction of about 40,000 being reported since the beginning of the year.

Following is a summary of the figures as issued:

	May, 1925	*April, 1925*	*May, 1924*
HIGH PRESSURE CORD			
Inventory	3,610,304	4,035,061	3,527,495
Production	1,815,969	1,816,641	1,651,366
Shipments	2,266,073	2,012,794	1,649,812
BALLOON CASINGS			
Inventory	1,386,840	1,080,594	569,624
Production	1,803,607	1,626,369	564,030
Shipments	1,484,877	1,448,974	282,595
FABRIC			
Inventory	1,461,301	1,700,699	2,033,774
Production	480,339	562,449	824,190
Shipments	1,484,877	1,448,974	282,596
HIGH PRESSURE INNER TUBES			
Inventory	7,535,418	8,726,603	8,296,177
Production	3,225,218	3,259,524	3,276,660
Shipments	4,513,460	3,556,258	3,465,021
BALLOON INNER TUBES			
Inventory	1,840,425	1,486,546	465,635
Production	1,908,973	1,879,007	467,448
Shipments	1,516,774	1,471,976	213,469
SOLID AND CUSHION			
Inventory	156,175	166,389	219,538
Production	75,473	66,059	63,901
Shipments	86,785	70,950	60,267

Guest Heads U. S. Rubber Export

Chas. E. Guest has been elected general manager of the U. S. Rubber Export Co., succeeding H. E. Smith who was recently appointed general sales manager of the General Division of the U. S. Rubber Co. Mr. Guest had been maanger of the Shanghai branch of the U. S. Rubber Export Co., for three years and before that was located in Manila. He has had 26 years experience in the export field of which 10 have been spent with the above company.

LEE SHOWS PROFIT OF $152,685 FOR 6 MONTHS

The Lee Rubber & Tire Corporation reports for the second quarter of the calendar year net sales of $3,584,187 and net profits of $152,685, which is at the annual rate of $2.85 a share earned on the company's 214,837 shares of outstanding common capital stock of no par value. Net of $152,685 compares with a net loss of $39,348 in the second quarter of last year.

Truck tire business of the company was 260 per cent larger than in the correspondnig quarter of 1924. The company's solid tire department is now running at full capacity and has orders on hand sufficient if no more are taken to keep it running at full capacity to Oct. To take care of rapidly growing business, plans are being made to enlarge this department, and an increase will also be made in production of pneumatic tires, according to the company, which announces that the Lee plant at Conshohocken where all pneumatic manufacture is concentrated will increase its production on Aug. 1.

The company's consolidated profit and loss and surplus accounts for the quarter ended last June 30, follow:

Net Sales	$3,584,187.41
Gross Operating Profit	162,679.30
Net Profit	152,685.04
Surplus June 30, 1925	2,111,246.89

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Further particulars may be obtained from

MYERS & GOLDSMITH, Attorneys

100 Broadway New York City

EXCELLENT SALES IN PARTS AND ACCESSORY INDUSTRY

The business of automotive parts, accessory and service equipment manufacturers for the first half of 1925 ran substantially ahead of the same period in 1924, according to figures compiled by the Motor and Accessory Manufacturers Association. A large number of representative makers of products sold to the motor car and truck manufacturers, the wholesale and retail trade and the motoring public reported an average increase in the wholesale value of their shipments to customers substantially in excess of the first six months of last year. The same companies reported that their plants had operated at an average of 83% of capacity during this period and were operating on July first at 79% of capacity. Sales reports for June, also compiled by the Association, showed a considerably less than normal seasonal decline from the high levels of April and May. The M. & A.M.A. index of sales for June stood at 158% of January as compared with 165% of January in May. By divisions of the industry the index showed sales of units, parts and accessories to motor vehicle manufactures in June 164% of January sales as compared with the May figure of 174% of January sales. Replacement parts sales to the trade in June were 129% of January sales as compared with 134% in May, accessory sales to the trade were 172% of January as compared with 173% in May and maintenance equipment sales showed a gain, aggregating 150% of January as compared with the figure of 146%.

Reports of sales by automotive jobbers throughout the United States and Canada showed a gain for the first half of the year over 1924 and a substantial advance in June over business of June a year ago. The jobbers' June business ran ahead of May in 13 of the 18 wholesale territories.

NO RUBBER SHORTAGE IN 1926 PREDICTED HERE

Figures recently issued by the Crude Rubber & Foreign Produce Corp., 250 West 57th St., New York, tend to disprove the idea of any possible rubber shortage and on the other hand the production estimates indicate that no appreciable rubber stock in London or New York will accumulate. The figures predict that 1926 production will be about 630,000 tons divided as follows:

British Malaya and Ceylon	335,000 tons
Dutch East Indies	230,000 "
Other eastern planted areas	30,000 "
Brazil	25,000 "
Other wild sources	10,000 "
TOTAL	630,000 tons

It is expected that later figures from Brazil will allow of higher estimates from that source.

Latest revised figures on the export of rubber from the Dutch East Indies have also been compiled from advices received from the company's representative in the Far East, G. J. M. Keulemans. These figures are the result of statistics obtained from the Department of Agriculture, Industry and Commerce of the Netherlands East Indies and the Rubber Trade Association of Batavia for the months of January, February, March and April while the May and June figures are unofficial estimates:

Exports from Dutch East Indies for the First Six Months of 1925

	Malaya	*Neth. Indies*	*Ceylon*	*Other*
Jan.	9,052	14,250	2,907	2,000
Feb.	11,552	17,500	2,018	2,000
Mar.	13,437	21,500	4,019	2,000
Apr.	10,663	17,600	3,200	2,000
May	13,689	19,500	2,954	2,000
June	13,188	20,500	4,227	2,000

Norwalk Listed on Curb

The Norwalk Tire & Rubber Company, whose common stock was introduced to trading on the New York Curb early in July, will show earnings of $3,500,000 for 1925 and net profits are expected to be $400,000 after depreciation and other charges, according to an announcement. That would be at the rate of $4 for the common.

The company is capitalized at $1,184,300 7 per cent cumulative preferred and $995,000 $10 par common stock. The only other capital liability is $750,000 ten year 7 per cent sinking fund gold notes.

Ratio of current assets to liabilities is 12 to 1. The company has an excellent earning record of nine years, the average net earnings for this period being $267,300.

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BRITISH-AMERICAN CO. IN FORECLOSURE SALE

The buildings and equipment of the British-American Mfg. Co., at Springdale, Conn., will be sold at a foreclosure sale on Thursday, September 3 at 12 o'clock noon according to Myers & Goldsmith, attorneys of New York City. The plant consists of slightly over 9 acres of property with a number of buildings of fireproof construction. The main factory is 220 x 60 ft.

The plant was equipped to make imitation leather, rubber blankets, hard rubber goods, rubberized cloth, piano player cloth, baby pants, rubber aprons, percale sheeting, pure gum, etc.

For some time the factory has been in difficulties and the receivers who were appointed a few years ago resigned and Hariette C. Brinckerhoff was appointed receiver in January 23, 1923. Previous to the equity proceeding a mortgage loan of $125,000 had been negotiated with M. Lowenstein & Sons, Inc., engaged in the textile business at 40 West 23rd St., New York City. Some time later the Lowenstein company brought an action to foreclose which was dismissed by Judge Thomas of Connecticut, holding that the mortgage was usurious, a ruling based on an additional fee above the interest on the mortgage which was received by Lowenstein Bros., co-partners in the factoring business.

An appeal was immediately taken to the U. S. Circuit Court of Appeals and in an opinion just handed down by Judge Manton, concurred in by Judges Hough and Learned Hand, the Court holds that the mortgage was not usurious and directed a judgment of foreclosure be entered immediately. The opinion further states that the mortgage was a bona fide one, that the full sum of $125,000 was loaned to the British-American Manufacturing Co., authorized by its Board of Directors and the money used in its business.

Judge Manton calls attention to the fact that the agreement of Lowenstein Bros. on which Judge Thomas in the Court below laid so much stress, was a separate agreement for services and not covered by the mortgage and that it in no way affected the mortgage or proved the defence of usury set up by the Receiver. He further stated that there was no fraud or illegality proven and that the evidence proved it was not a secret agreement. As a result of this reversal, the foreclosure was authorized.

New Incorporations

Elmhurst Rubber Co., Inc., Lawrence, Nassau County, N. Y. To manufacture rubber goods. 600 shares 1st. pfd. and 500 shares 2nd. pfd., par value, $100 and 1200 shares common, no par value. G. E. Jeandheur, 86 Weburn St., Reading, Mass.; Arthur W. Renander, 9516-85th St., Woodhaven, L. I.; A. P. Hilton, 461 East 29th St., Brooklyn, directors and subscribers.

The Penwyck Co., Inc., Albany, N. Y. To manufacture rubber and gutta percha products. S. E. Aronowitz, 36 State St., Albany; L. Aronowitz, 764 Myrtle Ave., Albany, and Howard Marston, Menands, N. Y., incorporators.

Hard Rubber Punched Goods Co., Montclair, N. J. $100,000. W. B. Dorlan, F. T. Clute, Montclair, and G. A. Vurgason, Pompton Lakes, N. J., incorporators.

Hicks Rubber Co., Amarillo, Texas. $10,000. R. E. Strickland, M. L. Kelly, and D. T. Hicks, incorporators.

INCREASE IN CAPITAL

Miller Rubber Export Co., Ltd., Akron, Ohio. From $50,000 to $300,000.

FISK HAS AMPLE SUPPLY OF RUBBER FOR THIS YEAR

According to a statement made recently by H. G. Fisk at Chicopee Falls, Mass., the Fisk Rubber Co., is well fixed for crude rubber for the balance of this year. Whereas many tire manufacturers had some supplies of low priced crude when prices started to rise, many of them are now bidding for rubber for Fall delivery. Fisk on the other hand put in a large supply when prices were low and as a consequence are not worrying about their costs for some time to come. Fisk business for this year has been very satisfactory as shown by their statements issued recently and the 1925 is expected to be its best year.

"—like Huber"

¶ The simile is frequently used to convey the accurate service expected from raw material suppliers.

¶ Fair dealing, prompt shipments and a quality designed exactly for rubber compounding requirements,—these are taken for granted by users of

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Akron, Boston, Chicago, Cincinnati, Cleveland, St. Louis, Hamburg, Germany, Los Angeles, New York, Philadelphia, Antwerp, Belgium, Toronto, Can., London, Eng., Paris, France

$25,000 PRESENTED TO WORKERS BY LITCHFIELD

F. W. Litchfield, vice president and factory manager of the Goodyear Tire & Rubber Co., made a gift of $25,000 to the welfare committee of the Industrial assembly at the "old timers" dinner held on July 15 in honor of Mr. Litchfield's completion of 25 years of service with Goodyear. In 1914, the Goodyear official made a gift of $100,000 to the men of five years' service or over.

The $25,000 gift, it was announced will be used to assist employees and to reward unusual service and deeds of employees.

Mr. Litchfield, at the banquet, was showered with congratulations from all sides. He was presented with a bronze tablet by the factory council and officers in the Akron plant. William Stephens, general superintendent, made the presentation. A large silver loving cup was another gift from the men employed at Goodyear's Toronto, Canada plant. E. H. Koken, general superintendent, made this presentation. The cup shows a tire, six-wheel truck, and a miniature airship, symbols of activities to which Mr. Litchfield has devoted the past 25 years.

Formal presentation of the 25-year service pin was made by President G. M. Stadelman. C. C. Slusser served as toastmaster.

The gift made by Litchfield surpasses in many respects the larger gift he gave in 1914. The $100,000 gift of eight years ago was used to organize the Service Pin association, which now has some 4,500 members. The money was invested in land and securities and more than $100,000 has since been paid out in dividends from the original fund.

Greenlee Resigns From Erie

H. R. Greenlee, formerly receiver for the Erie Tire & Rubber Co., Sandusky, Ohio, and more recently general manager under the reorganization, has tendered his resignation. It is said that business has been satisfactory and that production is at a high peak with about 600 tires being manufactured daily. Mr. Greenlee's successor is J. A. Miller, formerly treasurer of the Sterling Tire Corporation.

Cumberland Rubber to Open

It is stated that the Cumberland Rubber Co., Huntington, W. Va., will start the manufacture of surgeon's rubber gloves and other rubber articles within a short time. Equipment is now being installed and a quantity of crude rubber is already on hand.

Pioneer Elects Member of Board

At a recent meeting of the Board of Directors of the Pioneer Rubber Co., Willard, Ohio, K. L. Milligan was elected to fill the unexpired term of J. A. Underwood. Mr. Milligan has been with Pioneer since after the war and was assistant sales manager at the time of his promotion.

SPECIFICATIONS ISSUED BY BUREAU OF STANDARDS

Following is a list of U. S. Government Master Specifications recently issued by the Bureau of Standards, Washington, D. C. Copies may be obtained from the Bureau by sending 5 cents for each specification desired:

209 Oil Suction and Discharge Hose
217 Surgeons Rubber Gloves
218 Rubber Dam
219 Rubber Bandages
223 Rubber Tips for Crutches
224 Rubber Pillowcases
225 Rubber Catheters
226 Rubber Ice Bags
229 Friction Tape
230 Rubber Insulating Tape
233 Tucks Packing
234 Wire Insertion Rubber Packing
235 Rubber Packing and Gaskets
236 Cloth Insertion Rubber Packing
237 Low-Pressure Spiral Gland Packing
238 Asbestos High-Pressure Rod Packing
240 Diaphragm Packing
241 Compressed Asbestos Sheet Packing
243 Asbestos Metallic Cloth Sheet Packing
244 Rubber Valves
246 Rubber Ring Cushions
247 Surgeon's Rubber Aprons
248 Rubber Hot Water Bottles
249 Cloth Inserted Hot Water Bottle
250 Cloth Inserted Fountain Syringe
251 Rubber Fountain Syringe
252 Rubber Air Pillows
253 Rubber Sheeting
254 Cloth Inserted Ring Cushions
268 Steam Hose

Factice is extensively used in the manufacture of fruit jar rings. Here it's use is an advantage in lowering the gravity and, therefore, the cost per gross, in giving the stock the smoothness necessary and in increasing the elasticity in this class of goods which usually contain a high percentage of reclaimed rubber.

From—
"The Practical Side of the Use of Factice."

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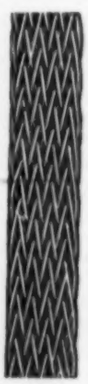

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Entire freedom from bead trouble in the construction of straight side tires is assured by the use of either National "(Patent)" High Tensile Strength, Flat Woven, Bead Braid or our new (Pratt Patent) Bead Cables. These cables, made to dimensions specified, have seven strands, yet only one piece of wire is used without soldered, welded or brazed joint.

Write for working samples of either National flat braid or Pratt cables (no charge to tire manufacturers) and full information as to our products and service.

Our engineering department tests beads and furnishes complete confidential reports as to their stretch, set and bursting point, without charge. Inquiries solicited regarding this special service.

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Niles, Michigan

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Dress Shields	Reducing Garments	Powder Puff Pockets
Bibs	Bathing Caps	Shirlastic Ribbon
Guimpes	Rubber Sheetings	Tourist Cases
Baby Pants	Hose Supporters	Dress Protectors
Crib Sheets	Household Aprons	Sanitary Goods

AJAX PROFITS SHOW INCREASE OVER 1924

The Ajax Rubber Co., Inc., and subsidiaries report for the six months ended June 30, 1925, net profits of $262,394, after depreciation, Federal taxes, etc., equivalent to 52c a share on the 500,000 shares of no par capital stock outstanding, as compared with $143,517 before Federal taxes, or 31c a share on the 425,000 shares outstanding in the corresponding period a year ago.

The income account for the six months ended June 30 compares as follows:

	1925	1924	1923
Gross sales	$9,696,213	$7,311,105	$8,964,371
Cost of sales, exps., etc.	9,146,088	6,736,117	8,106,116
Mfg. profit	$550,125	$574,988	$858,255
Misc. income	101,384	59,736	58,829
Total income	$651,509	$634,724	$917,084
Int. and depreciation	†330,024	311,602	325,327
Net oper. profit	$321,485	$323,122	$591,847
Fed. taxes	59,091	.....	.....
Extra adjust.*	.....	179,605	.....
Prov. for rev. of fin. stock, etc.	.....	.....	177,127
Net profits	$262,394	$143,517	$414,720

*Principally from reserve for minimum price reduction rebate, due to change in price.
†Includes $196,165 for depreciation.

The balance sheet as of June 30, 1925, shows current assets of $8,007,566 and current liabilities of $2,207,973, leaving net working capital of $5,799,593 as compared with $4,462,342 as of June 30, 1924.

Assets—	1925	1924	1923
Cash	$1,211,988	$710,167	$888,478
Accts. and notes rec.	3,192,617	2,694,741	3,322,781
Inventories	3,642,960	2,680,011	2,584,571
Misc. accts. and notes rec.	12,041	22,061	23,658
Invests.	571,550	518,901	609,421
Good-will and pats.	1,874,875	1,874,875	1,874,875
Defer. charges	337,367	339,310	342,116
Total	$14,869,022	$12,959,992	$14,978,958
Liabilities—			
Accts. and notes pay., etc.	‡$2,207,973	$1,622,577	$2,582,439
1st. mtg. gld. bonds	2,458,900	2,614,300	2,773,000
Capital s'k.	10,202,149	8,723,115	9,623,519
Total	$14,869,022	$12,959,992	$14,978,958

‡Includes $883,479 accounts payable, $1,150,000 notes payable and $174,494 accrued liabilities.

Rainbow Rubber to Start

It is reported that the Rainbow Rubber Co., Delaware, Ohio, would start production of tires, tubes, soles, heels and trusses about August 1. C. A. Morrison, secretary, recently stated that the finishing touches were being given the machinery and equipment.

Hearing on Rubber Rates

At the request of two rubber companies in Omaha, Neb., the Overland Trail Rubber Co. and the Nebraska Tire & Rubber Co., Examiner A. S. Knowlton of the Interstate Commerce Commission is conducting a hearing in the Omaha Federal Building on crude rubber freight rates.

In their petition the companies brought out the fact that the freight rate on crude rubber from the Pacific coast to the Akron district is 75 cents per hundred pounds. Omaha manufacturers are forced to buy on the New York market and the freight rate from New York to Omaha on crude rubber is $1.25. Omaha manufacturers ask for equalization of the rates.

Accident Delays Reopening

Several days after the Milleville plant of the Woonsocket Rubber Co., Milleville, Mass., had reopened after the annual summer vacation on July 18, a crack in the 16 foot main drive gear was discovered and insurance officials forced the plant to again close until the damage was repaired. It is expected that about three weeks will be required to replace the broken part.

Boston Rubber Reopens

After a three weeks layoff, the plants of the Boston Rubber Shoe Company recently reopened. 1000 employees at Malden and 500 at Melrose are affected. It is said that sufficient orders are on hand to keep both plants working at capacity for some time.

Cambridge Builds Addition

The Cambridge Rubber Co., 750 Main St., Cambridge, Mass., manufacturers of rubber footwear and clothing, have awarded a contract for a new reinforced concrete building to be erected at Windsor & State Sts. It will be five stories high, 85 x 85 feet.

AZO ZINC OXIDES

The man who sells and the man who buys are both beneficiaries of a good reputation. The association with AZO Zincs has brought untold progress to manufacturers, who believe that it is an aggressive principle always to investigate the merits of what the modern market offers.

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RESTRICTION'S EFFECT ON F.M.S. PRODUCTION

The Federated Malay States' rubber exports during 1924 amounted to 94,731 tons, in comparison with 102,818 tons in the preceding year and 129,404 tons in 1922.

Sir George Maxwell, Chief Secretary to the F.M.S. Government, says in his annual report for 1924 that throughout the year Malayan rubber planters continued to be subject to restriction, and the percentages of release in the four quarters of the year were 60 per cent, 60 per cent, 55 per cent, and 50 per cent respectively.

The "standard production" of the Federated Malay States for the second year of restriction (November 1, 1923, to October 31, 1924) was placed at 142,264 tons, classified as follows:—estates over 100 acres, 95,854 tons; holdings between 25 and 100 acres, 9,420 tons; and small holdings, 36,990 tons. The "standard" production for the first year of restriction had been considerably higher—162,350 tons, classified as follows:—Estates over 100 acres, 107,557 tons; holdings between 25 and 100 acres, 10,793 tons; and small holdings, 44,000 tons.

The reduction was a result of the activities of the assessment committee appointed early in 1924 to review the methods adopted on the introduction of restriction in 1922. Calculated on "standard production" alone, the quantity of rubber that has been kept off the market by restriction is shown by the following table:—

	1923. Tons	1924. Tons
Federated Malay States		
Standard production	162,350	142,264
Exports, F.M.S.	102,818	96,054
Estimated as withheld from market	59,532	46,210
British Malaya		
Standard Production	274,000	246,900
Exports, restriction area	177,644	165,241
Estimated as withheld from market	96,356	81,659

Large as these figures are, they do not give a correct impression of the quantity of rubber actually kept off the market, for "standard production," with its various allowances and its maximum of 400 lbs. per acre, is considerably below the potential output of the Federated Malay States.

Sir George Maxwell believes that the conservative systems of tapping, which perforce have been adopted on all holdings since November, 1922, mean, besides bark preservation, lower disease incidence and a material prolongation of yielding capacity.

LEE RUBBER FACTORIES MAKE GOOD SHOWING

All its plants are working at capacity, according to announcements by the Lee Rubber and Tire Corporation, which reports enough orders on hand for solid tires to keep that department busy at capacity to Oct. 1, should no more orders be received. In the second quarter the corporation's sales of solid tires increased more than 250 per cent over the second quarter of 1924. The quarterly report of earnings is now in process of preparation and a substantial gain in net earnings is assured.

The rise in crude rubber prices is regarded by the company as a help in some respects to the entire rubber and tire business. According to company officials the recent advance in rubber prices will hasten the abandonment of manufacture of superfluous sizes and styles in both solid and pneumatic tires. The company looks for continued firm prices in the rubber market although substantial reduction under present levels is regarded as likely.

The company was the first of the tire manufacturers to advance prices. This was done last December when the company's President, John J. Watson, Jr., stated that tire manufacturers were confronted with a choice of either lessening the quality of tires or of advancing prices.

Swinehart Protests Canal Bed

The Swinehart Tire & Rubber Co., Akron, Ohio, through its president, Thomas Walsh has again protested to state and city officials on the condition of the canal bed near the company's plant. Recent damages to the plant caused by floods have resulted in the company asking $30,000 damages and it is feared that unless a retaining wall is built severe washouts may be again expected.

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PRESIDENT & TREASURER

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GOODYEAR SIX MONTHS SALES LARGER THAN ANY SIMILAR PERIOD IN HISTORY

Sales Were $94,271,132 for All Plants and Branches—Akron Sales $78,130,645—New Departure Seen in $3,000,000 Reserve for Raw Materials

The report of Goodyear Tire and Rubber Company for six months ended June 30, 1925, shows consolidated net income of $6,011,407 after interest, etc., and $3,000,000 special raw material reserve. After allowing for half year's dividends on 8 per cent prior preference stock and management 6 per cent cumulative stock balance is equivalent to $8.31 a share earned on $65,079,600 outstanding 7 per cent cumulative preferred stock on which dividends have accrued since October 1, 1920. Allowing for only six months' dividends on 7 per cent cumulative preferred stock, balance is equal to $3.76 a share earned on outstanding 831,585 shares of no par common stock. This compares with net income of $4,173, 120, or $5.49 a share, on 7 per cent cumulative preferred stock, and $1.55 a share on the common in first six months of previous year.

Consolidated income account for six months ended June 30, 1925, compares as follows:

	1925	1924
Net sales	$78,130,645	$55,412,035
Oper. expenses	69,786,756	49,847,337
Oper. prof.	$8,343,889	$5,564,698
*Net prof. sub. cos.	3,050,378	1,226,655
Total income	$11,394,267	$6,791,353
Bond interest etc	2,382,860	2,618,233
Raw material res	3,000,000	.....
Net income	$6,011,407	$4,173,120
Dividends	2,828,628	.....
Surplus	$3,182,779	.....

*Includes other income.

E. G. Wilmer, chairman of the Board of Directors, in a statement summarizing the condensed balance sheet, said that net sales of the parent company in Akron for the first six months of this year were $78,130,645, while the net sales of the Akron, California and Canadian companies and foreign branches were $94,271,-132. This was exclusive of intercompany sales.

Stockholders were given the following statement regarding the special raw rubber reserve:

"Due to restriction of output, the current cost of rubber is very much in excess of the cost of production. Your Board of Directors therefore deemed it advisable to appropriate out of the last six months' earnings a "Special Raw Material Reserve" of $3,000,000 to partially provide against a possible and material decline in crude rubber values. This action is taken notwithstanding our present inventories and commitments assure us our requirements of rubber for the balance of the year at prices considerably under today's market prices."

The company's reported cash in banks and on hand amounting to $11,480,889. Current assets were given as $62,898,005 and current liabilities as $7,858,270, resulting in a ratio of assets to liabilities of more than 8 to 1. Inventories, based on the cost or market, whichever is lower, were reported at $33,444,625. The value of the properties and plants, less depreciation, was $44,070,839, and total assets were reported as $169,194,857.

Goodyear has $81,089,600 capital stock and a funded debt of $45,318,500. The report showed $5,947,131 set aside as a reserve for contingencies and Federal taxes.

D. D. Griffiths

The middle west tire industry learned with regret of the death on July 15th of D. D. Griffiths, tire salesman out of the Chicago branch of the U. S. Tire Co., since 1898. Mr. Griffiths was well known in that territory. He died after a short illness followed by an operation.

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RUBBER SECTION OF A.C.S. WILL NOT MEET IN WEST

It was recently decided by the Rubber Division of the American Chemical Society not to attend the Seventieth meeting of the society which will be held in Los Angeles, Aug. 3 to Aug. 8. It was felt by the members that the distance was too far and that under the conditions existing in the rubber industry at this time it would not be possible for enough to attend so as to make the meeting of value.

Carrier Closes for Two Weeks

The Carrier Engineering Co., 750 Frelinghuysen Ave., Newark, N. J., manufacturers of drying and ventilating equipment, including the well known Hunter system of drying used in the rubber industry announces that its entire organization will be given a two weeks vacation, from August 15th to August 29. Both the office and factory will be closed during this period and only a skeleton organization will be on duty to take care of emergency matters. This policy has been the custom of Carrier for the past several years and it is believed that by this means greater efficiency is obtained.

Mead Joins Hale

Fred S. Mead, Jr., has recently left the employ of the United States Rubber Company to take charge of the general factory management of the Alfred Hale Rubber Co., Atlantic, Mass.

Parrot Mimics Puncture

An English motorist on a recent trip suddenly heard the dread sound which indicates a punctured tire. He pulled up hurriedly and examined all the wheels. There was no trace of a burst, nor were any of the tires flat. Considerably mystified, he was about to resume his journey when another car came along. Again there came the loud report, and the second motorist pulled up, dismounted—and was equally puzzled.

Then the mystery was explained. Hanging outside one of the windows of a nearby hotel was a fine large parrot, and the bird, by simulating perfectly the sound of a puncture, had deceived both drivers. According to the hotel proprietor a passing car a few weeks previously punctured a tire. The parrot—a wonderful mimic—was so attracted by the new noise that it added it to its repertoire.

Chinese Unrest May Affect Rubber Shipments

It is thought possible that the recent unrest in China may spread to adjacent ports in the East, and consequently interfere with shipping. It is not expected, however, that the trouble will affect labor on the Malayan rubber estates, but any delay in shipment from the East would have an extremely serious affect on supplies, as there is now no reserve available at any point.

DE MATTIA BROTHERS HOLD ANNUAL OUTING

On Saturday, July 18, over 150 employees of De Mattia Brothers, Inc., manufactures of the well-known Corechuck, motored to Singac, N. J., where they enjoyed their annual outing. After a morning devoted to frolic a tasty chicken dinner was enjoyed.

During the course of the dinner, Homer N. Davis, shop superintendent, in behalf of the employees, presented Peter De Mattia with a hunting coat, and a leather traveling bag. Edgar Rankin, foundry superintendent, in behalf of the foundry employees, presented B. De Mattia with a lovely gold watch charm, symbolic of the Order of Elks.

During the day numerous contests were held, and worthy prizes awarded for each event. The most sensational surprise of the day occurred in the Fat Men's one hundred yard dash, when Morris A. Pearson, sales manager, crossed the line ten yards in front of Barthold De Mattia.

Rubber Earnings in New York

According to statistics made public on July 31 by State Industrial Commissioner James A. Hamilton, factory workers engaged in the manufacture of rubber and gutta percha goods in New York State, during June, for the entire state received an average weekly wage of $27.41 in New York City they averaged $26.37; the average paid to men in the industry was $32.10 and to women, $16.86.

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Ten percent? Fifty percent? If so, *The Rubber Age* can help you increase your sales among the balance because it is read by the leading executives, chemists and engineers in practically every rubber factory in this country and Canada - twice every month.

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URGES CHANGE OF PHILIPPINE LAND LAWS TO PERMIT RUBBER GROWING

Secretary of Philippine Chamber of Commerce States that Congress and Philippine Legislature Has Right to Change Laws So as to Permit Purchase or Lease of Large Tracts

In an article published in a number of American newspapers, copyrighted by Cosmos Newspaper Syndicate, Norbert Lyons, Secretary of the Philippine Chamber of Commerce, reviews the supply and price situation of crude rubber and after stating that the experts sent by the Department of Commerce have reported that there are 3,000,000 acres of land available for rubber lands in the Philippines, he asks why steps are not taken to avail ourselves of this opportunity by urging on Congress that existing land laws prohibiting any concern or individual from owning more than 2500 acres or from combining so as to control larger areas, should be repealed and other laws enacted to enable American manufacturers to grow their own rubber.

Mr. Lyons further states that the labor would have to be Filipino and many of the executive posts could be held by Filipinos. "The plan," concludes Mr. Lyons, "is not only perfectly feasible but logical and decidedly practical."

The complete statement follows:

Secretary Hoover recently announced that British control over the rubber industry in the Middle East will enable Great Britain to repay her war debt to us out of the enhanced profits thus accruing to her. This should open the eyes of American business men to the great opportunities for growing rubber under our own flag in the Philippine Islands.

When the Stevenson act restricting rubber exports from the British centers of production was enacted in 1922, the price of crude rubber immediately rose. The British grower of rubber benefited while the American consumer—who uses three-fourths of all the rubber raised in the world—was made to pay the bill, through higher prices for tires and other rubber goods.

This was a situation that caused Congress in 1923 to make a large appropriation for the study of the possibilities of rubber production in Latin America and the Philippine territory. A commission of experts was sent to the Philippines and reported that in Mindanao and adjacent islands some 3,000,000 acres of the finest rubber land in the world lie uncultivated and ready for utilization. The area under rubber cultivation in the whole world is slightly less than 4,000,000 acres. If the available rubber land in the Philippines were utilized, therefore, it could grow all the rubber needed by this country now and probably for many years to come.

Why, then, are no steps being taken to produce rubber on this rich portion of our national public domain in the Philippine territory and thus free ourselves from foreign domination in this important industrial field? Why do not American manufacturers start plantations in Mindanao and thus save the American public anywhere between $100,000,000 and $250,000,000 a year—these figures representing the estimated excess price of rubber due to the Stevenson act.

The answer is that under existing laws enacted by Congress it is impossible for any individual corporation to lease or purchase a sufficiently large tract of land to permit of commercially profitable cultivation of rubber. No corporation may buy or lease more than 2500 acres of public land in the Philippines, and such an area is insufficient for rubber cultivation except on a very limited scale. Combinations of companies for the purpose of controlling larger areas than are permitted to individual corporations are also forbidden by law.

Congress has the power to change these laws. It may either pass a measure of its own permitting American concerns to acquire tracts large enough to warrant the large-scale cultivation of rubber, or it may give its consent to a similar law enacted by the Philippine Legislature. Thus far neither of these bodies has made a move toward adopting such a measure. The Philippine Legislature meets in July, and Congress opens its sessions in December. In view of the soaring price of crude rubber, which is approaching 80 cents a pound, nearly three times the average price of last year, the need for such legislative action becomes apparent.

Not only would the American people benefit to the extent of hundreds of millions of dollars a year through the raising of rubber under the American flag, but the Filipino people would also benefit, through the possession of a new major industry. The labor required would have to be largely Filipino, and many of the executive posts in all probability would also be held by Filipinos.

Large-scale rubber development in the islands would most likely encourage the growing of rubber on a smaller scale by individual planters, just as it has done in the British and Dutch rubber-growing areas.

It is not at all difficult to conceive of a law which will adequately meet the requirements of the American rubber manufacturers and at the same time satisfy the claims of the Filipino people, provided neither side is unreasonable in its demands. The land is there, the need is urgent, and all who might participate in the enterprise will reap benefits from it. It is up to the Philippine Legislature or Congress to take the first steps in establishing this great industry under the American flag.

Every person who uses rubber tires should be vitally interested in the proposal of growing rubber under the American flag in our Philippine territory. Its realization would mean to him a big saving in dollars and cents. And it is not only a perfectly feasible but a perfectly logical and decidedly practical proposition.

The Bubble Boat, a Bamboo Frame Supported by Rubber Pontoons, which Recently Appeared on American Beaches

Philippine Rubber Legislation

According to a recent Associated Press cable from Manila, the Bureau of Forestry has prepared a bill for the next Legislature providing for leasing of approximately 125,000 acres of land in Cotobato province, where success in growing rubber has been demonstrated.

The bill provides for leasing the land to any company agreeing to plant rubber trees. The life of the leases would be twenty-five years, with privilege of renewal for a like period. The Government would assess no taxes against the land during the first twenty-five year period.

CONVERSE STATEMENT SHOWS IMPROVEMENT

Sales of the Converse Rubber Shoe Company, Malden, Mass., for the fiscal year ended March 31, 1925, were the smallest of any year since 1918, amounting to $3,928,305, compared with $4,995,286 in the 1923-24 fiscal period and $4,470,646 in the year before that. The annual audit has not yet been completed, but it is expected that results will show the company just about earned the 7 per cent dividend on the $2,457,300 of preferred stock.

Results for the current year are said to be showing an encouraging improvement. May, it is understood, showed an operating profit of $134,758, leaving net after charges, taxes and preferred dividends of $24,176 available for the common shares. The Malden plant is operating at 90 per cent of capacity, with the entire production sold up to November 1. Converse now has in stock or contracted for sufficient rubber to care for production of both footwear and tires up to February 1, 1926, at prices averaging less than one-half current spot charges.

The balance sheet as of May 31, 1925, with comparisons, follows:

ASSETS

	1925	*1924
Cash	$78,853	$210,348
Notes receivable	44,263	130,140
Inventories	2,007,375	1,577,965
Accounts receivable	1,503,757	1,500,243
Due from subs (current)	374,623	432,190
Due from subs (deveit)	700,000	700,000
Investments	75,061	78,369
Plant and equipment	1,334,153	1,346,468
Prepaid interest and rent	65,550	.....
Unamortized int on notes	129,236	.....
Patents	500,000	625,000
Deferred debit items	.....	179,262
Chicago lease	122,218	.....
Totals	$6,935,089	$6,779,986

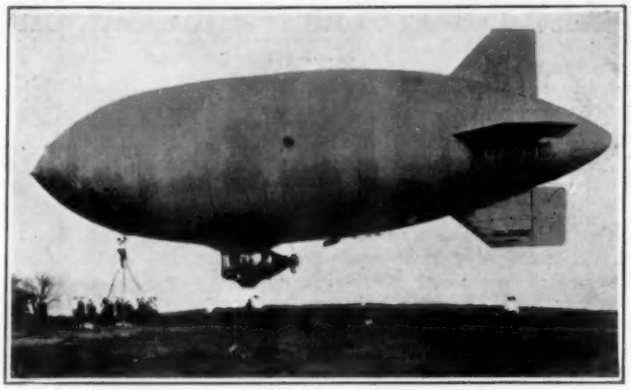
LIABILITIES

Accounts payable	$235,667	$113,456
Notes payable	663,000)	
Trade acceps (contingent)	550,000)	1,190,000
Coupon notes	100,000)	
Funded debt	1,467,000	1,613,000
Preferred stock	2,457,300	2,457,400
Common stock	337,400	302,000
Surplus	970,898	947,368
Reserves	153,824	156,762
Totals	$6,935,089	$6,779,986

*As of March 31.

Converse Rubber Shoe Company is to sell $600,000 of non-redeemable 7 per cent preferred stock. This will bring the outstanding stock to 1049 shares of redeemable preferred, 31,201 non-redeemable prefered and 3750 common shares, all of $100 par value. President Converse says proceeds will be devoted to retiring short term loans and increasing working capital.

Goodrich Airship "Pilgrim" Launched



International Newsreel Photo

"The Pilgrim," the world's smallest airship and the first commercial lighter-than-aircraft to be inflated with helium, was christened and sent on its inaugural flight in Akron, Ohio, July 18 by its builders, The Goodyear Tire & Rubber Co.

The little airship, designed for P. W. Litchfield, first vice president of Goodyear, while intended for pleasure cruising, is regarded by the manufacturers as largely a demonstration ship and will be used in certain tests and experimental work.

"The Pilgrim" is 110 feet long, 45 feet high, and has a capacity for 50,000 cubic feet of helium, being approximately one-50th the size of the Zeppelin "Los Angeles."

Powered with a 60 horsepower Lawrance radial engine, the small air cruiser has a maximum speed of almost 60 miles an hour and a cruising radius of from 10 to 20 hours, the economy in fuel consumption being pronounced.

Besides the pilot and motor mechanic, facilities for the transportation of two passengers are provided for in the streamlined cabin suspended directly under the envelope and entirely enclosed.

A portable mooring mast has been devised which can be set up anywhere that 250 feet of level ground is available, and attached to the mast the airship will revolve with the wind. Other masts are also in the construction stage in the Goodyear factory.

Mr. Litchfield believes that the future of this type ship may bring mooring masts at country clubs and on private estates and even the holding of airship regattas in the same way that motor boat and yachting clubs now have similar events, bringing all the pleasures of yachting to those who live inland.

The general use of these small airships is conditioned on helium. There is plenty of the inflation gas available in the ground and Congress last year authorized the sale of surplus helium for commercial use.

The helium supply in the past has been limited by government appropriations but with a market for helium the government plant could be kept in operation throughout the entire year making possible all the helium commercial or private owners want.

"The Pilgrim" will be operated in the vicinity of Akron during the remainder of the summer and early fall, Mr. Litchfield announced.

Hudson Joins Akron Standard

C. B. Hudson, formerly in the Development and Engineering Department of The B. F. Goodrich Company, is now chief engineer of The Akron Standard Mold Company, succeeding H. D. Reichard who resigned to accept the position of development engineer with the Racine Horseshoe Tire Company of Racine, Wis.

Automobile Production Decreases

The Department of Commerce announces June production of motor vehicles as 364,806 passenger cars and 37,890 trucks, of which 350,557 passenger cars and 36,096 trucks were made in the United States, and 14,249 passenger cars and 1,794 trucks were produced in Canada.

The table below is based on figures received from 185 manufacturers for recent months, 73 making passenger cars and 130 making trucks (18 making both passenger cars and trucks). Data for earlier months include 63 additional manufacturers now out of business, while June data for 23 small firms were not received in time for inclusion in this report. Figures on truck production also include fire apparatus, street sweepers and busses.

Automobile Production

(Number of Machines)

January	212,921	204,620	8,301	28,147	26,582	1,565
February	252,803	242,024	10,779	34,412	32,719	1,693
March	332,154	319,140	13,014	45,101	43,012	2,089
April	391,302	375,787	15,515	47,828	46,252	1,576
May	382,714	364,363	18,381	43,286	41,398	1,883
June	364,806	350,557	14,249	37,890	36,096	1,794
TOTAL (6 mos.)	1,936,700	1,856,491	80,209	236,664	226,059	10,605

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[*For answer see our advertisements in the June 25, July 25, Aug. 25, Sept. 25, Oct. 25, Nov. 25 issues of* THE RUBBER AGE]. Reprints furnished on request.

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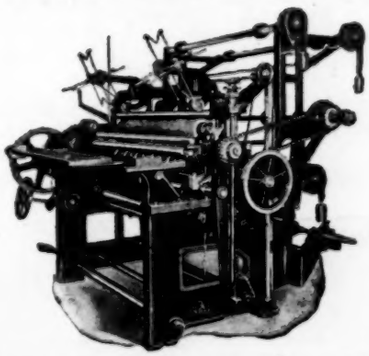

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AKRON BRIEFS

From Our Special Akron Correspondent

One of the most pleasant surprises of Akron's Centennial week was furnished by the announcement on July 22 that dividends will be paid by the B. F. Goodrich Co. on common stock for the first time in over four years. A regular annual dividend of $4 a share will be paid on all common stock in quarterly dividends of $1 each, the first to be paid on Aug. 15 to stockholders of record Aug. 3.

A dividend of $1.75 a share on preferred stock also will be paid on Oct. 1 to stockholders of record Sept. 15. Officials at the New York headquarters of the company said the resumption of dividend payments was made possible by the large increase in net earnings which totaled $7,106,615 in the first half of this year. Net sales were $60,400,000.

Thousands of Akronites who invested in Goodrich stock at peak prices during the World War rejoiced over their perseverance in holding onto this stock which had failed to net them anything since the post-war slump. Many investors had sold their holdings at heavy losses.

Company officials believe sales this year will exceed those of last year which amounted to $109,000,000. L. D. Brown, treasurer of the company, was elected vice president and treasurer, and H. Hough, comptroller was elected vice president and comptroller.

• • •

The Mohawk Rubber Company is producing 1300 tires and 2000 tubes daily, and reports an increase of 48 per cent in the business of the first half of 1925 as compared with that of the same period last year. S. S. Miller, president of the Mohawk Rubber Company, was the first superintendent of the Goodyear Tire & Rubber Company. After two years he became superintendent of the Kelly-Springfield Tire Company and in 1913 he purchased the plant of the old Stein Double Cushion Tire and organized the Mohawk Rubber Company.

• • •

Star Rubber Company sales for June, 1925, were reported by President L. H. Firey as larger than any month for the past five years. D. A. Grubb is vice-president in charge of distribution, while John A. Christie is factory superintendent.

• • •

The American Rubber & Tire Company is now producing 900 automobile tires and 1400 tubes as well as 3100 pairs of bathing slippers daily in addition to many air bags, swimming tubes and football bladders. The company has shown a healthy growth in the past year under the administration of the following officers: F. C. Snyder, president and treasurer; J. T. Johnson, vice president and secretary; E. L. Schmock, sales manager; and C. T. Morledge, assistant sales manager.

• • •

Dividends of two per cent on common and 1¾ on preferred stock payable on Oct. 1 to stockholders of record of Sept. 21 have been declared by the India Tire & Rubber Company. Gross sales for the first six months of 1925 show an increase of 89 per cent over the sales for the same period last year. The capacity of the India plant was recently doubled.

This company and the General Tire & Rubber Company of Akron have never passed a dividend. At the General plant it is boasted that no employee has been laid off since the dark days of 1920. Both companies produce tires and tubes exclusively.

• • •

S. W. Justice, 31, an employee of the Firestone Tire & Rubber Company, died of a fractured skull July 22 as the result of being hit on the head by a heavy iron crow bar with which he was working in the solid tire pit at the factory. Justice leaves a widow and two small children.

• • •

Cuyahoga Falls, Ohio, boasts of the largest manufacturer of baby cab and toy tires in the Eclat Rubber Company, which also supplies the largest share of radiator hose for Ford cars as original equipment. This company also operates the Champion Rubber Company plant at Kent, Ohio, as a subsidiary.

• • •

F. A. Seiberling and Harvey S. Firestone, presidents of rubber companies which bear their names, both played prominent parts in the Akron Centennial celebration held from July 19 to July 25. As president of the Metropolitan Park Board, Seiberling formally accepted a memorial tablet dedicating the northern terminus of the old Portage Trail, while Firestone on the opening day of the celebration told of how the rubber industry had contributed to Akron's growth.

• • •

The popularity of mechanical rubber goods produced at the Trump Brothers' plant on East Market street proves that the great rubber factories are not alone in bringing fame to Akron. E. H. Trump is president; F. G. Alderfer, vice president; and R. M. Trump is secretary-treasurer.

• • •

Officials of the Akron Standard Mold, the Akron Rubber Mold and Machine, and the Akron Equipment Companies report that their volume of business is continuing to be unusually good with all factories in the Akron territory operating at capacity.

• • •

Floats entered by the Firestone Tire & Rubber Company and the B. F. Goodrich Company won prizes in the Akron Centennial parade. The Firestone float depicted a section of an oriental rubber plantation with native huts in the background. The Miller Rubber Company also entered a float made attractive by bathing beauties who executed fancy dives into a four-foot tank of water.

Firestone Prize Winning Float of Akron Parade in Centennial Celebration

SEIBERLING URGES RUBBER GROWING IN PHILIPPINES

If the native legislature in the Philippines acts favorably on Governor-General Wood's proposal to allow larger acreage leases, the contract labor question will remain as the only bar to rubber growing on a large scale by American interests in the Philippines, according to F. A. Seiberling, president of the Seiberling Rubber Company and chairman of the committee appointed by the Rubber Association of America to study means of making American rubber manufacturers less dependent on the British crude rubber supply.

Seiberling suggests that restrictions against contract labor in the Philippines be suspended for at least ten years in order to enable planters to hire inexpensive Chinese coolies as laborers. He declares that American manufacturers should have a closer control of the crude rubber supply of which they now control but 5 per cent, while consuming 70 per cent of the world's supply.

Heretofore the island government has restricted land leases to units of 2500 acres which made it impossible for growers in the Philippines to compete with Dutch and British rubber planters. Certain American firms have been experimenting for 15 years with rubber plantations in the Philippines and in Sumatra. The United States Rubber Co., and Goodyear, which was founded by Seiberling, were pioneers in this movement which is now being pushed so persistently by H. S. Firestone, who looks to Liberia, the Philippines and the Dutch East Indies for relief from the present critical situation. Firestone believes that the protests of British rubber manufacturers added to those from America will result in definite action being taken soon to modify the British rubber restriction act, which the planters are beginning to regard as unfair.

Malay plantation owners reprobated the release of 6000 tons of unlicensed rubber accumulated in the Singapore market two weeks ago and protest against the act which prevents the release of rubber accumulated on their plantations. They also feel that speculators and middlemen have profited more than they have by the higher prices resulting from the restriction act.

Globe Gets Tax Cut

According to a recent authorization made by the Mercer County Board of Taxation, the Globe Rubber & Tire Manufacturing Co., Trenton, N. J., has obtained a reduction of $37,225 on realty assessment and $40,000 on personal assessment.

The realty assessment on the plant was $112,225, and the personal levy of the company was $75,000. Contending that this was in excess of the true value, the company filed an objection, and the County Board allowed a cut in the realty levy from $112,225 to $75,000 and in the personal item from $75,000 to $35,000.

A. M. Astor Joins Goldsmith

A. M. Astor, well-known in the rubberized fabric industry for the past fifteen years has severed his connection with the F. S. Carr Co., Boston, Mass., and has gone into business with A. J. Goldsmith of the A. J. Goldsmith Co., which firm will hereafter be known as the A. J. Goldsmith-Astor Co., with factory, stock room and offices at 433 Broome St., New York City.

Mr. Astor was formerly connected with the Plymouth Rubber Co., Canton, Mass., the Mead Rubber Co., Stoughton, Mass., and the Cambridge Rubber Co., Cambridge, Mass., handling the sales of calendered fabrics and proofed goods. At the time of his resignation from the F. S. Carr Co., Mr. Astor was New York representative. Mr. Goldsmith was at one time with the Empire Shield Co., N. Y., and since 1919 has been operating as the A. G. Goldsmith Co., handling all kinds of rubber fabrics as well as manufactured rubber specialties. It is the intention of the new firm to operate along the same lines as formerly.

Old Smith Plant Sold

The factory formerly occupied by the Smith Tire and Rubber Co., in Garfield, N. J., and more recently bought by B. De Mattia and R. J. Metzler at a receiver's sale, has been sold to a company headed by W. W. Huselton of 43 Cedar St., N. Y., for the manufacture of a battery called "Revio" that can be recharged from regular house current.

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The Rubber Industry in the Philippines

Extensive Rubber Lands Lie Idle—Mindanao and Basilan Island are Ideal Sites for Big Rubber Plantations—Lack of Capital Retards Rapid Growth

By P. Rivera

RUBBER growing looms large as a future Philippine industry. Experiments and investigations made to determine its local possibilities have shown that the Philippines can become one of the biggest producers of rubber in the world. Mindanao and the island of Basilan could supply the entire world demand for rubber. Only the lack of capital has hitherto kept the vast rubber resources of the Archipelago almost untapped. The Philippines' yearly output of rubber is still very limited, but when the industry becomes more fully developed, there is no doubt that rubber will rank with hemp, sugar, copra, and tobacco as one of the leading exports of the Islands.

Rubber Areas

Rubber can be grown almost anywhere in the Philippines, but the best lands are those found below the typhoon belt. In the province of Sorsogon one plantation has some 10,000 healthy growing trees, while another plantation has also been started in the neighboring province of Albay and another in Abucay, Bataan. All these places are on the island of Luzon which is visited almost yearly by strong typhoons. The best stands of rubber trees are found on the island of Basilan, and in Mindanao, and may be grown also in Jolo and Tawitawi, all of which are situated below the typhoon belt. The southern half of Palawan is also well adapted to rubber and is free from destructive typhoons.

Mindanao

Mindanao has an area of 36,292 square miles of which only 30 per cent is under cultivation. It is the richest in natural resources, but the least developed, of all the larger islands of the Philippine Archipelago. Such places as the Agusan Valley at its east central part covering more than 4,000 square miles of fertile land, the open fertile country of Bukidnon to the east of the valley that can be cleared at a very low cost, the Rio Grande valley above and adjacent to Catabato with an area of about 3,000 square miles, and the Davao country to the east side of this valley having another thousand square miles of fertile soil, all offer great possibilities for investments in rubber.

A great deal of the uncultivated areas of this island is covered with almost impassable forests. Other areas are in cogon grass lands where the inhabitants of the country in years past have cleared the forests and have cultivated the soil for several years. These areas, as a rule, have since become overgrown with cogon grass. They are rich agriculturally and inexpensive to put into cultivation for rubber, coconuts, and other products. These cogon grass lands comprise perhaps 60 per cent of the land areas of Mindanao which are available for cultivation.

Soil and Climate

The soil and climatic conditions in Mindanao and the nearby islands are ideal from the rubber planter's point of view. Rich deposits of alluvial and mountain soils, well drained by rivers and streams; virgin soil, just cleared of forest; even temperature; abundant rainfall, evenly distributed throughout the year; and the absence of typhoons and high winds combine to make them excellent fields for the cultivation of rubber. The temperature in Mindanao varies

Castilloa Rubber Trees, Basilan, Mindanao

usually between 75 and 95 degrees Fahrenheit on the low coastal plains and low interior plateaus. The humidity is high throughout the entire area. The farther it is inland, the heavier the rainfall. In some sections, the rain is of daily occurrence, coming between noon and midnight. There is also a heavy nightly dew that is extremely helpful to rubber and other tropical plants.

Water Power

These regions are abundantly supplied with water power which could be utilized for the factory as well as for transportation. Their water supply is ever ready for irrigation purposes. They also have good harbor facilities where big freighters and interisland steamers can easily dock. Zamboanga, a port of entry on the Basilan Strait, is at the doorstep of many potential rubber plantations. Davao, another convenient outlet for these areas, is also growing in importance as an open and interisland port.

Government Leases and Sells Lands

Lands can be obtained on liberal terms. The Philippine Government leases through the Bureau of Lands to any private individual, corporation, or entity parcels of lands not to exceed 1,024 hectares, charging only three per cent of the assessed value of the land per year. It also sells lands not to exceed 100 hectares to a private person, and 1,024 hectares to a corporation at the nominal price of £10 per hectare and up, depending upon the locality and particular conditions of the land purchased. If a greater area is desired, the Philip-

From *Commerce and Industry Journal*, Manila, P. I., March, 1925.

pine Legislature may, by special legislation, authorize the sale of a greater area or permit the lease of any amount owned by the Insular Government for a longer term of years as was done in the case of a big sugar company.

Labor Supply

The supply of labor necessary for big rubber plantations that may be established in the Islands could be secured locally. There is no scarcity of laborers in the Philippines but there is a need for better redistribution of the country's laborers in order to prevent over-crowding in many places and scarcity in others. Hundreds of Filipino laborers are emigrating to Hawaii every year and there are already thousands of them working in Hawaiian plantations. The Filipino laborer is, as a rule, peaceful and law-abiding.

Cost of Production

The cost of production and cultivation depends largely upon the kind and conditions of the land, labor, plan, and method of the manager or administrator of the plantation. Mr. Pearson of the *India Rubber World*, visited Basilan Island in 1917, and in his investigation of the rubber industry there found a comparatively lower cost of production in the Philippines as compared with several other rubber-producing countries. The cost of government land excluded, the expenses for bringing one hectare of rubber land into cultivation and maintain it, in the Philippines, as compared with those of other rubber-producing countries, are as follows:

	For bringing land into cultivation	Upkeep cost	Total
Philippines	P251.64	P88.92	P340.56
Sumatra	363.58	98.80	462.38
Java	553.10	113.62	666.72
Federated Malay States	779.10	.....	.....

Para Rubber

Repeated experiments have shown that Para Rubber had the most successful growth among the different varieties introduced into the Islands. According to records covering a period of several years kept by some of the local planters as to its growth under varying conditions, it was found that it makes a very sturdy growth in Mindanao and Basilan. In an average field of Para Rubber in the latter, hundreds of trees about three years old showed a girth of eighteen inches three feet from the ground. What is more interesting is that when several thousand trees four years old were tapped for the first time, the records of production for a period covering one year showed an average yield of one and one-half pound of first-class rubber per tree acceptable in the United States markets.

Average Yield

Under ordinary conditions, however, a rubber tree in the Philippines, six or seven years old, yields about one pound of dry rubber a year and this yield increases to not less than one-half of a pound every year thereafter until the tree reaches its twenty-fifth year, after which from 15 to 20 pounds of dry rubber could be obtained annually during the rest of the lifetime of the tree. According to the Bureau of Agriculture, the yield of rubber per hectare with 400 trees growing therein has been estimated as follows:

Age of trees	Kilos of rubber
4 years	110
5 years	240
6 years	180
7 years	240
8 years	300
9 years	370
10 years	450

According to the same authority, the number of trees to a hectare depends upon the distance betwen the plants, as shown in the following:

Distance in meters	Trees per hectare
4.5 x 4.5	494
5.0 x 5	400
5.5 x 5.5	335
6.0 x 6	277
7.0 x 7	204
8.0 x 8	156
9.0 x 9	123
3.5 x 7	408
3.5 x 8	357
3.5 x 9	317
3.6 x 7.2	394
4.0 x 8.0	312
6.0 x 12	137

Under favorable conditions a tree is ready for first tapping

Grove of Three Year Cearas in La Carlotta, Philippines

when it reaches its fourth or fifth year. At this age, the tree generally has a circumference of about 40 centimeters at a height of not less than one meter. Rubber can be produced from the time it is first tapped until the tree attains the age of about 60 years, the life limit of most trees of this kind.

The United States is the biggest market for crude rubber, absorbing nearly 75 per cent of the world's supply of this raw material every year. More than $300,000,000 (£600,000,000) of American capital is invested in various rubber manufacturing establishments. In 1923 the United States imported £370,115,438 worth of crude rubber, and during the first nine months of 1924, £237,885,974. Most of these imports are supplied by British Malaya and the Dutch East Indies. The Philippines' share of this enormous trade is still very small. Rubber exports from the Islands in 1924, the biggest on record, amounted to only 97,903 kilos valued at £110,225.

Influence of Accelerators on Temperature

Gummi-Zeitung, 1925, 537-40; 572-6

The extent of the heat which is developed during vulcanization with the aid of an accelerator is indicated by the temperature which is recorded at the center of a block of the rubber mixture which is enclosed in a metallic cylinder, for example depth, four centimeters, diameter three centimeters, which is immersed in a bath of oil at constant temperature, for example 140 degrees C. A distinct correlation is observable between the development of heat and the influence of the accelerator on the degree of vulcanization.

With a mixture of plantation rubber and sulphur the thermal effect decreases from lime to magnesium oxide to litharge. If the rubber has been previously freed from resinous matters by extraction with acetone the effect generally is much less marked and decreases from magnesium oxide to litharge to lime. The presence of oxide of zinc induces a lower heat development than any of the preceding substances, the thermal effect induced with less than 50 parts to 100 parts of rubber and ten parts of sulphur, being less marked than with the rubber sulphur mixture alone. Antimony tetrasulphide has a slight accelerating effect, as also has zinc oxide in proportions above 50 per cent.

The Effect of Heat on the Plasticity of Crude Rubber

By **B. Marzetti**

Physical Laboratory of the Pirelli Co. of Italy, Milano

IN recent numbers of THE RUBBER AGE, (Vol. 15, p. 454, Sept. 25, 1924; Vol. 16, p. 372, Mar. 10, 1925) experiments have been described which show the principle and operation of the Marzetti plastometer and its application to the measurement of the plasticity of different types of crude rubber. In continuation of this interesting theoretical work, experiments are now described which deal with the influence of heat on the plasticity of rubber under various conditions. This work is not only of theoretical importance like the preceding experiments but is of direct interest to factory operation in that changes in rubber stocks which have been known in an indefinite way through experience are now explained most systematically.

Two distinct heat effects have always been recognized, one an immediate but temporary softening, the other a softening which takes longer to appear but is more or less permanent. By utilizing the Marzetti plastometer these effects can be differentiated and quantitative data can be obtained on changes due to heating and to milling.

By testing plasticized rubber in this apparatus at increasing pressures and temperatures it was found that above a certain minimum range of temperature (50-60° C), which is about the same for all pressures, the plasticity is a linear function of the temperature, but below this critical temperature no simple relation seems to exist. This critical point is also visible in the appearance of the exuded rubber, for below this temperature the surface is rough, while above 60° C it is smooth, the latter condition indicating telescopic flow. This was verified for temperatures where the plasticity was directly proportional to the temperature by extruding a mixture of alternate thin layers of two different colored stocks.

These results emphasize the fact that below a minimum temperature, unvulcanized rubber is so little plastic that it more nearly resembles vulcanized rubber in its action in the pastometer and therefore that plasticity determinations below this critical temperature range are of little value.

Furthermore the temperature range within which this sudden change in the plasticity occurs is not influenced by the length of time or by the temperature of milling. Even when a rubber is milled so long that it has become very soft, the transition temperature above which the plasticity increases greatly is not changed noticeably.

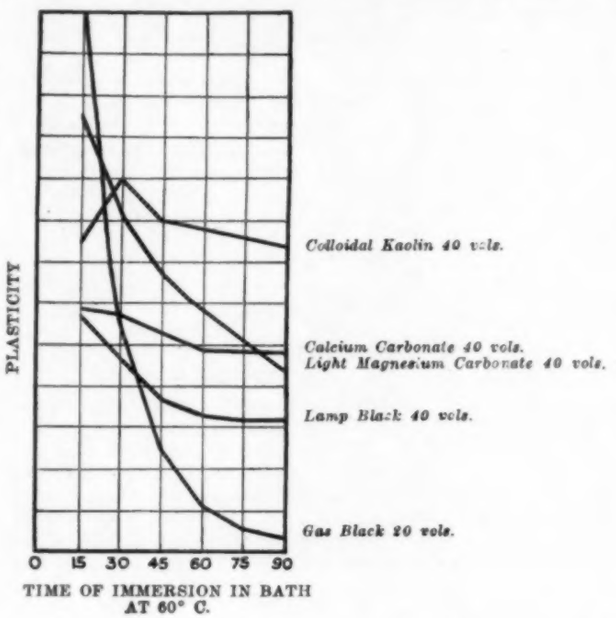
On the other hand the addition of "softeners" lowers this critical temperature. Thus ten per cent of palm oil lowers the temperature about 10° C.

Though the addition of large volumes of fillers does not change the plasticity except for the increase due to the extra milling, a remarkable phenomenon occurs with such mixtures either above the transition temperature or at room temperature. If rubber heavily loaded with fillers is tested in the plastometer, a progressive decrease in plasticity occurs like that occurring when sulphur and an organic accelerator are present. Here however without sulphur or accelerator scorching must be precluded and furthermore the phenomenon is characteristic of all ingredients, whether fine or coarse. The effect is a minimum with koalin, zinc oxide, etc., is particularly great with lamp black and magnesium carbonate and is a maximum with gas black.

The diagram showing this decrease in plasticity also indicates that this decrease becomes less rapid and approaches a minimum.

Further experiments show that an equilibrium is probably reached between the softening of the rubber and the coagulating effect of the fillers. This equilibrium is reached soonest at higher temperatures but even at room temperature is reached in a few days. Hardening when brought about at a high temperature is destroyed by mechanical treatment, but when brought about at room temperature the plasticity is only in part recovered by mechanical treatment.

While the slow hardening at room temperature has a practical interest, the rapid effect at higher temperatures is of great importance in plasticity measurements. In the latter case, it requires a certain time for the mixture to reach the temperature desired and meanwhile the plasticity is decreasing on account of the effects described above and so it becomes impossible to determine exactly the initial plasticity. The latter is the value desired in factory mixtures because during milling hardening cannot set in. It is found that comparative results can be obtained between different mixtures by choosing low temperatures where equilibrium between the hardening action of pigments and the softening by heat is reached more slowly.



In heating rubber for the plastometer there are certain necessary precautions, particularly avoiding contact with air. This can be accomplished by heating the mixture in a thin mould under pressure in an ordinary vulcanizing press. The thin slabs are then cut and rolled up to form the cylindrical pieces for the plastometer.

The following table gives the index of plasticity (in terms of the sq. root of the mg. extruded in 15 min.) for smoked sheets:

House of heating	*143° C*	*151° C*	*158° C*
1	22.5	24	27.5
2	23	25	29
3	24.5	28	29.5

The plasticity increases with time and with temperature. Prolonged heating to plasticize rubber would however be useless in practice, for the greater part of the action is obtained in the first hour.

It has been shown in a previous article [*Giornale di Chimica Industriale ed Applicata* **6**, 277 (1924); RUBBER AGE 16, 372

Abstracted from the Giornale di Chimica Industriale ed Applicata, Vol. 4, Dec. 1924, pp. 567-70, by C. C. Davis.

(1924)) that after mechanical treatment 10 per cent is about the limit of accuracy of plasticity measurements. On the other hand when merely heated as above, the error due to a variation of 1° C in the temperature is not much more than 1 per cent. This renders possible a method of determining the plasticity of rubber by heating without mechanical treatment.

Following this procedure, numerous tests were made on smoked sheet, crepe, hard para and slab rubber, the average of all the results of which are shown:

Index of Plasticity

	After mechanical treatment	*After thermal treatment*	*Ratio*
Smoked Sheets	47	10.5	4.5
Crepe	45	8.5	5.3
Hard Para	35	3.4	10.0
Slab	21.9	7.6	2.8

It is evident that the two methods are not similar, and therefore where plasticity after mechanical treatment such as milling is involved, the measurements must be made after similar treatment. Furthermore the results indicate that in plasticizing maturated slab a heat treatment as well as milling might be advantageous, whereas with hard para such a heat treatment would be of little value. The objection to this is of course that plasticization by heat differs from that by mechanical treatment and probably decreases faster than by the latter process.

To determine whether such a difference existed in the permanence of the plasticity obtained by mechanical and by thermal treatment, smoked sheet was plasticized by each method and then tested after increasing periods of rest. The results were as follows:

AFTER HEATING 2 HRS AT 143° C		AFTER MILLING ALONE	
Plasticity	*Days of rest*	*Plasticity*	*Days of rest*
28	0	34	0
26	1	33	1
25	2	34	2
24	6	33	7

A noticeable diminution occurred after thermal treatment, whereas within the precision of the method the plasticity did not change after mechanical treatment.

Conclusions

In the diminution of plasticity of unvulcanized rubber with rise in temperature there is a discontinuity which, if it does not represent true fusion, is at least a sudden and profound change in the physical properties.

A singular phenomenon occurs with mixtures of rubber and pigments on fillers, which is marked by a decrease in plasticity on standing at any temperature. This decrease approaches a lower limit in a few hours when hot and in a few days at room temperature. In the first case the initial plasticity is completely recovered by mechanical treatment, in the second case only in part.

Increase in plasticity due to thermal treatment varies greatly for different types of rubber, being almost the same for smoked sheet and crepe, about one-half these values for hard para and about twice as great for maturated slab.

Use of Cars for Tire Salesmen

Experiences of Miller Rubber Company with Salesmen's Cars Shows Many Advantages for This Form of Travel

AUTOMOBILES are being recognized by manufacturers and sales agencies as an economical and efficient means of transportation and a large number of modern salesmen ride on rubber tires.

Today hundreds of sales managers provide motor transportation for their representatives. Some of them rely largely upon it while others depend only partially on the system.

Indications point to a still greater reliance on the use of autos by traveling salesmen in the future. They place the salesmen on a sphere of independence, in which he can come and go as he pleases and conduct his business unhampered by any outside influences.

The man who travels by motor—his own or his company's transportation—is boss of his own time. He is haunted by no fear of unkept appointments and he can take his eye off the clock while he presents his merchandise.

This means of transportation is a development of the last few years. Ten years ago it was an experiment. Today it is an established fact that motor transportation is convenient, that it is economical and that it is a saver of time and money.

In the early days of automobiles, and even up to comparatively recent years, sales organizations were unable to adopt them successfully because they were handicapped by poor roads in most sections of the country. Bad roads practically prohibited their use in winter and spring months when snows, ruts, mud and mire, conspired to prevent transit.

The great advance in highway construction, with the hundreds of thousands of new hard surface highways, giving as good a highway in winter as in summer, has afforded an enormous impetus to commercial use of motor driven vehicles.

The Miller Rubber Company was one of the great industrial establishments first to recognize the value of automobile transportation and today the sales force largely uses either company cars or privately owned automobiles upon which an allowance is made for operation and upkeep.

Auto transportation was instituted and developed by the Miller sales force five years ago. Previously salesmen sometimes had to rush to their work in a town and give it less attention than it demanded or they were likely to undergo long delays if they failed to make connections.

When the use of autos for transportation was adopted much of this was eliminated. The salesman could not only come and go between cities as he pleased but once there, he had a cheap, efficient means of reaching his customers. He could visit more of them in a day, and use his leisure in presenting his merchandise.

So Miller adopted the auto system of transportation and equipped its salesmen with small closed cars, or permitted them to use their privately owned cars and allowed them the same amount for upkeep and operation, on a mileage basis, as was necessary for the company cars.

The plan has proven laudable. The salesman has been made independent and he can cover more ground than before. He can reach two or three towns a day where formerly he often could cover no more than one.

The cars have not proven as costly as auto operation sometimes is claimed. Machines are used until it appears their repair costs, compared with the costs of new machines and the trade-in values of the old ones, are not justified.

Included in the costs of auto transportation are interest, depreciation, repairs, gas and oil, insurance, and in fact everything that might be attributed to operation and maintenance, together with the original cost, of a car.

The average Miller salesman in the field covers between 1200 and 1500 miles a month. The amount of service from cars varies greatly, according to the territory that it must cover. With the building of more improved roads annually, mileage costs should drop slightly while the use of autos should become more popular with the increase in the number of miles of improved highways.

The Leaders in the Industry Display Their Wares in the MARKET PLACE.

VULCANIZATION & ACCELERATORS

By Andre Dubosc

PART II (*CONTINUED*)

Natural and Mineral Accelerators

Further Investigations on the Enzymes in Rubber Experiments of Spence—Variations of Proteins in Rubber—Views of Vernet and Wildeman—Study of Rubber Seeds and Distribution of Protein Matter

As we saw in our last issue, Spence was able to isolate both in the rubber and in the latex a substance known as a catalase, which possessed the capacity of effecting oxidations by fixing the oxygen of the air. The rubber gum therefore was found to contain a complete oxydase, and *oxygenase-peroxydase*.

Then again it has been indicated that the presence of these enzymatic substances in the rubber is what causes its dark color. Thus it has been found that it is possible to destroy the color of the rubber by washing the gum with water that has been acidified with the aid of formic acid, immediately after the latex was coagulated. In this manner it is possible to obtain coagulated rubbers which are absolutely white in color, but in this case the percentage of protein matters that are found in the rubber diminishes in a singular fashion, in fact from five to one per cent.

Experiments with Rubber Enzymes

The enzymes which are contained in rubber and which are isolated with the aid of methods of the character just described are then mixed with a fairly large proportion of protein matters. The reactions that are obtained with such mixed protein compositions are more sharply defined than those that take place with proteins which are obtained in the regular manner. When these mixed protein compositions are fused with the admixture of potash, there are formed a variety of substances which possess the power of reducing Fehling's solution. Then again these substances react with hydrochloric acid and also yield the color reaction which is distinctive of *pentoses*, when treated with phlorogluceine. It therefore appears to be evident that these substances after fusion with potash contain carbohydrates, which calls them, according to Spence, among the *glucosamines*.

The nitrogen which is found in the rubber latex and in the coagulated rubber that is obtained from the latex does not correspond in its entirety to the nitrogen that is found in these glucosamines. A certain part of the nitrogen is also found in various *crystalline combinations*.

These substances, the so-called crystalline combinations, are found to remain behind for the most part in the serum, and are not met with at all in the coagulated rubbers. The substances contain about 0.15 per cent of nitrogen in all. When the serum is subjected to dialysis and the dialyzed liquid is evaporated, there is obtained 1.57 per cent of a dry product. It is then found on further analysis of this dry residue that 1.4 per cent of the same is composed of organic crystalloids, sugars and organic acids, and that 0.206 per cent of mineral crystalloids, the bases of which are potash and magnesia.

Variation of Proteins in Rubber

The variation of the proportions of protein materials in various rubbers may be seen from the following tabulation. It is also clear that there is quite a difference in the percentage of proteins in the various rubbers.

KINDS OF RUBBER	PERCENTAGE OF TOTAL PROTEINS
Hevea plantation rubber	2.41
Kassai, black	4.30
Kassai, red	1.06
Eleli	4.11
Manicoba	8.63
Manaos	4.56
Congo clusters	4.51
Fine Brazil Para	2.41
Light Congo	5.21

These various protein matters are constituted of saturated bodies, for, according to Blanc and Vaubel, it is possible to make them fix the halogens in the following proportions: from four to five per cent of bromine, from six to seven per cent of iodine and from two to three per cent of chlorine. We will return later to a further discussion of this matter.

The Role Played by the Protein Matter

The next question that arises is what is the role that is played by these protein substances in the rubber latex.

According to Potts this role is one of prime importance, for the proteins act as a protective colloid. Thus the protein matters are responsible for maintaining the globules of rubber in the rubber latex in the state of an emulsion. They also prevent the coagulation of the rubber.

The anti-coagulating stabilizing powers of the protein matter is therefore quite considerable. Thus in the first place it is necessary to determine the precipitation of the protein matter in order to arrive at finally the coagulation of the rubber itself.

This fact explains why it is that protein substances are always found in intimate admixture with the coagulated rubber mass.

Further Explanation of the Phenomena

In accordance with the views that were expressed by Vernet and Wildeman, the rubber latex that is contained in the rubber tree is a product which has its origin in physiological activity and which in itself possesses physiological properties. It is therefore a substance which is constantly being formed and being used as well for nutritive purposes in the plant. It is in this connection that the various enzymytic bodies which are found admixed with the protein matters in the rubber milk exert their activity. The oxygenases must have some action on the gums in order to convert them into oxidized rubber, on which the peroxydases act in turn, decomposing the oxidized rubber, as if it had been reacted upon with oxygenated water.

Thus, following the scheme that was outlined by Harries, from rubber we pass first to its ozonide, then by condensation to the aldehyde and levulic acid, which is a substance that is met with in the examination of Hevea rubber and Fantumia rubber.

The protein matters are found most especially in an agglomerated condition distributed throughout the rubber seeds, where they serve as a source of stored food held in reserve. Inasmuch as this characteristic of the proteins is

quite general, it is probable that if one undertakes, from this special viewpoint, a study of the character of the particles of Hevea rubber, it will be found possible to isolate considerable quantities of protein which are found merely as traces both in the rubber latex and in rubber itself. The decomposition of the protein substances, when subjected to the action of the enzymes, will make it possible to furnish on a commercial scale the famous natural accelerator of vulcanization which was described by Stevens. This is the substance which when added to the rubber gum at the moment of its coagulation results in the preparation of rubbers, which will vulcanize very rapidly without the necessity of adding any artificial accelerators.

Study of the Rubber Seeds

Spring and Day, (see the Bulletin of the Imperial Institute, 1913, volume IX, number 4, page 551 ff.) have studied the seeds of the rubber plant with the idea in mind of producing an oil. They gave very interesting information on the subject of the proteins that are contained in these elemental matters. The results that they obtained, showing the proportion of proteins in the seeds and in the nuclei, are given in the following tabulation:

Test No.	Non-decorticated dry seeds % nitrogen	Dry non-decorticated nuclei % nitrogen	Dry decorticated seeds % nitrogen	Dry decorticated nuclei % nitrogen
1.	0.22	2.67	1.37	16.7
2.	0.19	2.42	1.19	15.1
3.	0.23	2.25	1.44	14.1
4.	0.25	2.45	1.56	15.4
Average	0.22	2.45	1.39	15.3

After the oil had been extracted from the seed which represented forty-five per cent of the nuclei, the percentage of crude protein matter was 27.8 per cent, $\frac{15.3 \times 100}{55}$. The analysis of the press cake gave the following results: water 8.75 per cent, crude protein matter 30.19 per cent of which the true proteins were 24.85 per cent and the nitrogenous products 5.34 per cent, oil 8.71 per cent, starch 41.74 per cent, fibrous matter 5.01 per cent and ash 5.60 per cent, making a total of one hundred per cent. Neither saponin nor hydrocyanic acid was found.

The extraction of the protein matters that are contained in the different seeds and kernals of Hevea rubber is furthermore just as easy as their extraction from rubber latex and rubber itself. The exact methods that are used for this purpose have been clearly explained by Reithausen, Wegl, Denis and particularly by Osborne.

The protein matters are found in the different parts of the rubber seeds, and principally in the endospermic cells and in the protoplasm in these cells, where the proteins act as a source of reserve food. They are also found in the cells which form the embryonic tissue.

By extraction with the aid of water, alcohol, saline and alkaline solutions, which are employed one after the other, it is very easy to separate the total amount of protein matter contained in the seeds. The latter are first pulverized and then subjected to this treatment. In this way it is possible to make an intensive study of the properties of these protein substances.

In this fashion it may then be determined exactly how these proteins decompose when subjected to the action of enzymes, and thereafter to make a study of the action that is exerted by these different substances on the progress of vulcanization.

It must be evident that this is a subject which can be investigated most extensively and intensively, a study which is new and novel, and from the technical standpoint can produce results of the highest importance as far as the invariability of plantation rubber is concerned for example. Unfortunately up to the present time, as far as the writer knows, no such study has been undertaken.

Character of Proteins in Rubber

All kinds of rubber do not contain the same protein ingedients. While in the Hevea latex and in the rubbers that are derived from it, conjugated proteins are met with, which arise from a combination of carbohydrates with oxygenated compounds of nitrogen, and which are capable of acting as bases or as acids, in making use of their amino or carboxyl groups, in other rubbers, like Fantumia and Kickxia, proteins are found which are present in the form of peptones or derived proteins. These last named substances are more like crystalloids than colloids. They are the result of enzymytic action which is brought about by the enzymes that diffuse readily through the membranes and these substances are coagulated by means of formaldehyde only.

The enzymtic substances which accompany these various proteins are also of different character. While oxygenases and peroxydases are found in Hevea latex, in the case of ficus elastica and Cayla a ferment is met with which is similar to rennet which is employed to curdle milk. This substance is found in the state of a white powder, while oxygenase and peroxydase in Hevea are isolated in the condition of brownish red crystals which look very much like the crystals of chromic acid.

The separation of the protein matter from coagulated rubber is an operation of considerable delicacy, and when the method employed by Weber and by Spence is employed in which chloroform is the solvent used, a great length of time is consumed in the operation. Different improvements have been perfected in this method by Spence and Kratz, by Dekker, by Franck and by Bernstein.

Extracting Proteins from Coagulated Rubber

Spence and Kratz treat the rubber gum with benzine to which is added from 0.3 to 0.5 per cent of trichloroacetic acid. Then the solution that is obtained in this manner is exposed to the action of the sun's rays while it is being constantly agitated. After a period of forty-eight hours, the viscosity of the solution having become less than that of the benzine, it is possible to cause the insoluble matter to settle without any difficulty. The insoluble substances are then washed twice with the benzine mixed with trichloroacetic acid, then with pure benzine and with ethyl alcohol and finally the solids are dried. The dried residue is ground, then treated in a Soxhlet apparatus with benzine and with ethyl alcohol.

When this experiment is carried out with Hevea plantation rubber quite variable percentages of insoluble matter are obtained These percentages often vary from 9.83 to 12.08 per cent. The proportion of nitrogen in these quantities of insoluble matter varies from 7.75 to 10.3 per cent. The residual matters are soluble in an aqueous solution of soda containing one per cent of sodium hydroxide. The addition of mineral acids to this solution results in the reprecipitation of the insoluble matters. In alkaline solution all the reactions, which are characteristic of both proteins and carbohydrates, are obtained.

The Dekker Process

Dekker separated the insoluble matters that are contained in rubber by heating the gum for a period of three hours with a heavy petroleum oil, which possessed a boiling temperature of 260 degrees C. The residual matter that remained behind after the gum had been treated in this fashion was analyzed and was found to contain 10.5 per cent of nitrogen in the case of Hevea sheet rubber and 7.3 per cent of nitrogen in the case of Para hard fine.

The method that was employed by Frank consisted in dissolving raw rubber in cymene, dimomene or dipintene. The solution of rubber that is obtained in this manner is then centrifuged, the process lasting an hour and a half. The residual mass which is separated from the rubber solution is then washed with boiling xylene, then with benzine and ether and finally it is dried.

In order to isolate the insoluble matter that is contained in rubber, Bernstein made use of the action of the rays of the ultra violet light on a solution of rubber in a considerable quantity of petroleum ether, so that a very dilute solution is obtained. The test was carried out in the absence of air. The viscosity of the rubber solution is destroyed within a period of three minutes of exposure and then the insoluble matters may be separated out by simple filtration.

The next question that comes up for discussion is the nature of the protein matters that are found in the rubber gum and

(Continued on Next Page)

EDITOR'S REVIEW DESK

Books **Trade Catalogs** **Articles**

SERVICE—HISTORY AND EVOLUTION OF ACCELERATOR SERVICE. Booklet, 28 pages. The Rubber Service Laboratories Co., Akron, Ohio.

This booklet is most attractively printed and illustrated with a number of photographs showing different views of the testing and compounding laboratories of the company with the equipment which is needed for making complete tests of all its products. The purpose of the booklet is to give in detail the essentials of the service which this organization gives on accelerators, and to give to the rubber industry that knowledge of its personnel and ability to serve which is so essential to cooperation between seller and buyer. Specialization in service is explained—what it is and how rubber manufacturers may get the greatest benefits from it. The facilities of the laboratories, the experience of its personnel, and a description of the various accelerators, softeners, colors, etc., conclude this valuable booklet. The Rubber Service Laboratories Co., will send copy to anyone not receiving a copy.

* * *

USE OF FACTICE—Papers Submitted by Users. 36 page booklet issued The Stamford Rubber Supply Co., Stamford, Conn.

When a volume merits reprinting, as this booklet has done, then it can truly be said that every rubber manufacturer should have a copy. Factice, a product derived from the chemical combination of sulphur with such vegetable oils as rape, castor, corn and soya bean, has innumerable uses in rubber compounding and this booklet not only gives these uses but shows the how and why of each application. As an indication of how thoroughly the field is covered the following chapter heads will show the completeness of the booklet: Economic Value of Factice in Rubber Compounding; Factice as a Compounding Ingredient; Use in Proofing; Use in Cements; Practical Side of Use of Factice; Use in Rubber Covered Rolls; etc. Each chapter is written by men engaged in rubber manufacturing and is based entirely on his individual experience.

* * *

AUTOMATIC CONTROL—Temperature, pressure, humidity, liquid level, condensation, etc. New and revised edition. 84 pages. Illustrated. C. J. Tagliabue Mfg. Co., 18-33rd St., Brooklyn, N. Y.

A new feature of this catalog, not included in former editions, is a six page introduction stressing the importance of automatic control in various industries. There follows complete descriptions with illustrations of the various Tagliabue automatic control apparatus, and their application in the rubber industry.

* * *

UNITED STATES GOVERNMENT MASTER SPECIFICATIONS FOR FLAX PACKING, AND ASBESTOS METALLIC CLOTH GASKETS. Circulars of the Bureau of Standards.

These specifications deal with the usual requirements recommended by the Bureau for articles of this type. Material entering into manufacture is described carefully and inspection, tests, packing and marking are given consideration.

* * *

PROMOTION OF KNOWLEDGE OF ENGINEERING MATERIALS. Annual address by the President of the American Society for Testing Materials, at its annual meeting in Atlantic City, June 23.

In his address, at the Twenty-Eighth Annual Meeting of the Society, the President, F. M. Farmer, spoke of the necessity for cooperation among those interested in basic research on engineering materials, permitting an even distribution of costs and allowing the drafting of the best available talent for the consumer and producer alike. Touching upon standardization, he pronounced it the Society's most valuable contribution to the knowledge of engineering materials. Mr. Farmer held the Society responsible for much of the research and cooperative work in the field of engineering materials.

MANURING OF HEVEA BRASILIENSIS. Article in May, 1925 issue of the Malayan Agricultural Journal, by F. G. Spring.

Experiments on the manuring of Hevea have been conducted in Ceylon, Malaya, South India and Sumatra, but the results obtained do not indicate that the application of artificial fertilizers will be an economic proposition in resepect of increased yields of latex, except in certain circumstances.

The trees which are most likely to be benefitted by manures are those growing on (1) light soils deficient in humus, (2) sandy soils, (3) poor laterite soils, (4) soils which have been under long cultivation previous to the planting of rubber, and (5) soils such as those described in the experiments carried out in Sumatra in which the absence of ammonification and nitrification was recorded.

* * *

SOUTH AMERICA'S TRADE. Issued by Foreign Commerce Department, Chamber of Commerce of the United States, Washington.

This pamphlet is a compilation from official South American and United States Statistics, of the main commodities bought and sold by each country, the best customers and chief suppliers and sundry statistical information.

Tables supplying detailed data from the principal Republics of the Southern continent are included in this booklet, and a summary of the commodities, total quantities and values, exported from the United States during 1923, are given.

Two hundred and eleven thousand automobile tires, valued at $2,408,000, 831,000 lb. of rubber belting, valued at $504,000. and 190,000 pneumatic tubes for automobiles, valued at $317,000. were exported from the United States to South America during 1923.

Accelerators—Dubosc

(Continued from Page 309)

the classes to which they belong. Our knowledge on this point is still very vague and the experiments and investigations that have been carried out are still very markedly incomplete.

"The nitrogen compounds found in crude rubber and in rubber latex," says Spence, "are not, as was presumed by Schnizt in 1913, simple proteins. On the contrary they are made up of conjugated proteins which result from the combination that takes place between a carbohydrate and a protein. They appear to correspond to a *gluco-protein*, and when the rubber protein matters are kept in alkaline solution, they are found to give the greatest part of the reactions that are common to the aforementioned conjugated protein."

This fact was confirmed by Franck who found that the compounds of a nitrogeneous character that are found in rubber latex give the xanthogenic reactions, the biuret reaction and the Millon reaction. The Liebermann reaction is uncertain, but on the contrary the nitrogenous compounds in the rubber give all the precipitation reactions which are so characteristic of the albumens. Furthermore these nitrogencous compounds are precipitated from their aqueous solutions by means of tannins.

According to Franck and Markwald (see Chemiker Zeitung, 1914), there was found along with these in the presence of a true protein, which yielded on hydrolysis aromatic amino acids and heterocylic amino acids, diaminocarboxylic acids and also mino-amino-dicarboxylic acid and cystine.

Kayes and then Beadle and Stevens found phosphorus in rubber and came to the conclusion that it is possible to find in the nitrogeneous matters derived from rubber a nucleoprotein as well. Finally Cayla and Spence have stated that peptones exist in certain kinds of rubber latex.

(Continued in Next Issue)

The Market Place

WHERE TO OBTAIN
Machinery, fabrics, chemicals, compounding ingredients, crude and reclaimed rubber, consulting chemical and engineering services, etc.

ACCELERATORS—X L O and Diphenyl Guanidine.
Dovan Chemical Corp.
30 Church St. New York

FOLLOW-UP
Your mail efforts by a listing in this section. It will repay you the slight cost.

CASES—Fibre construction, insure satisfactory shipping results. Send for sample.
Brooklyn Fibre Syndicate, Inc.
Decatur St. & Irving Ave.
Brooklyn, N. Y.

ACCELERATORS — Two new accelerators: Vulcone and Di-ortho-tolylguanidine.
E. I. du Pont de Nemours & Co., Inc.
Pyrotnf's Dept. Sales Div.
Wilmington, Del.

CALENDERS—Embossing, for artificial leather, oil cloth etc.
Textile-Finishing Machinery Co.
83 Exchange Place, Providence, R. I.

CATALPO— A colloidal and gritless clay now being used as a reinforcing pigment in number one treads, solids, and tubes.
Moore & Munger
33 Rector Street, New York City — Second National Bldg., Akron, Ohio

ACCELERATORS— Every lot is tested before shipment and a written guarantee of quality furnished.
Roessler & Hasslacher Chem. Co.
709 Sixth Ave. N. Y. City

CARBON BLACK—*Micronex* the world's standard gas black, universally known as the "King of Rubber Pigments."
Binney & Smith Co.
41 East 42nd St. New York City

CHEMICALS
Refined Pine Tar
(Moisture Free)
Petrolatum--Burgundy Pitch.
E. L. Bullock & Sons, Inc.
99 John St. New York City

ACCELERATORS—A19, A7, Thiocarbanilid.
The RUBBER SERVICE Laboratories Co.
611 Peoples Savings & Trust Bldg.
Akron Ohio

CARBON BLACK
nine grades for the rubber industry.
Godfrey L. Cabot, Inc.
938-942 Old South Bldg. Boston
611 Metropolitan Bldg. Akron

CHEMICALS and compounding ingredients for the rubber trade.
Harshaw, Fuller & Goodwin Co.
Cleveland, Ohio

ANTIMONY Pentasulphide, golden and crimson, very fine, pure.
Rare Metal Products Co.
Tyler Patterson Co.
Belleville, N. J. Cleveland, Ohio

CARBON BLACK—*Aerfloted* Arrow Black for rubber compounding. Standard for grit-free uniformity.
J. M. Huber, Inc.
130 West 42nd St. New York

CHEMICALS and compounding ingredients; Clay, Whiting, Accelerators, Mineral Rubber.
R. T. Vanderbilt Co.
50 East 42nd St. New York City

ASBESTINE—Specially prepared for use in Rubber. Send for liberal working sample.
SOLE PRODUCERS
International Pulp Co.
41 Park Row, New York City

CARBON BLACK — *Black Goose Brand*—free from grit and impurities and of high tensile strength.
Union Power Co., Inc.
Carbon Black Division
Shreveport, La.

CHEMICALS and pigments for the rubber trade. Complete stocks carried.
Wishnick-Tumpeer Chemical Co.
Chicago Cleveland Brooklyn

BEAD CABLES— National Flat Woven and Pratt Patent Bead Cables.
National Standard Co.
Niles, Mich.

CARBONEX — Increases strength and durability of any compound while reducing the cost.
The Barrett Company
40 Rector St., N. Y. City

CLAY — COTT'N BLOSS'M Brand. Absolutely uniform and gritless. Send for five-pound laboratory sample and prices.
The American Pigment Co.
Ravenna, Ohio

THE MARKET PLACE Section Continued on Second Page Following.

MARKETS

Cottons and Fabrics

NEW YORK, Aug. 3, 1925

Reports of additional rains over the weekend in Texas and Oklahoma induced scattered liquidation and professional selling during the early trading on the local Cotton Exchange today. This carried values moderately under Saturday's closing level, but on the decline the market encountered good support from various interests and a moderate recovery from the low levels took place. Profit taking by recent short sellers, coupled with scattered buying by commission house interests, also served to steady the market later in the session. Trading, however, was dull and little progress was made on either side of the market.

According to private reports received this morning substantial rains fell over a widely scattered area in Texas and Oklahoma. The reports stated that the drought has been broken over all of the latter State and that only a relatively small area in the central and southern portions of Texas remain unrelieved. Local crop authorities expressed the opinion that the crop outlook in the western belt is brightened considerably as a result of the recent rains there. Conditions in the eastern and central portions of the belt also are favorable.

The past week in cotton trading witnessed the culmination both of the advance which followed the sensationally bullish Government report issued Thursday, July 23, when October contracts touched 25.03 on Monday, as well as of the marked reaction to 23.44 for the same month reached on Friday. At its highest, October showed an advance over the price ruling just before the Government report was issued of 213 points, or more than $10 a bale. At the lowest of Friday a reaction of 159 points was shown.

The market's tendency to rally, toward the close of last week, was ascribed to expectation that the world's consumption estimate for the past season, to be announced by Secretary Hester at the close of this week, would make a bullish showing, and that the carry-over at the end of the season will be shown to be small considering the size of the last crop. According to the *Journal of Commerce*, a compilation of figures on the July condition of the crop, shows a condition of 64 per cent as compared with 69.6 a month ago and with 70.7, the average for the past five years. This figure would indicate an output of 12,879,876 bales this year in twelve states. Severe droughts in Texas, Oklahoma and Missouri served to bring the average down but relief in the form of heavy rains will bring the yield from these states to a much level. Despite these beneficial rains, much permanent damage has been done in several states, especially in the last named states. Prices have dropped within the last few days on reports of larger yields and on the receipt of cables from Liverpool denoting weakness of the market there. Today's closing prices are:

New York Cotton Prices

	Open	High	Low	Closing	Closec July 15
October	24.00	24.18	23.80	24.17	24.02
December	24.13	24.22	23.97	24.21	24.11
January	23.54	23.64	23.43	23.63	23.52
March	23.75	23.95	23.70	23.90	23.81
May	24.10	24.25	24.00	24.20	24.08

TIRE FABRICS

On a whole the market for tire fabrics has been quiet, especially when the continued high production of tires is considered. Requirements are not being anticipated for any considerable period probably on account of the uncertainty of production schedules for the balance of this year. Some demands for immediate delivery indicate that stocks are not ample. Prices have changed little, with low quotations still the rule. Inquiries for large lots have been sent out by some manufacturers and a few mills are willing to release fabrics for spot delivery. Some interest is being shown in deliveries during the first quarter of 1926. Prices follow:

CORD FABRICS

Combed Sakellarides		Nominal		
Combed Peeler	lb.	Nominal		
Carded Peeler		.49	@	.50
Combed Egyptian uppers	lb.	.68	@	.71
Carded Egyptian uppers	lb.	.60	@	.63

SQUARE WOVEN

17¼-ounce Egyptian uppers, combed	lb.	Nominal		
17¼-ounce Egyptian uppers, carded	lb.	.59	@	.61
17¼-ounce Sakellarides, combed	lb.	Nominal		
17¼-ounce Peeler, carded	lb.	.47	@	.49

Ducks—The market for ducks has been fairly active with increases in prices on most lines. Several orders of considerable size for hose and belting ducks were recently placed at 40½ cents with deliveries running into March. Inquiries have been good, especially for spot.

SHEETINGS

40-inch	2.50-yard	yd.	.15	@	—
40-inch	2.85-yard	yd.	.12¾	@	—
40-inch	3.15-yard	yd.	.13½	@	.13⅝
40-inch	3.60-yard	yd.	.10⅞	@	.11
40-inch	3.75-yard	yd.	.10¼	@	—
40-inch	4.25-yard	yd.	.09	@	—

DUCKS

Belting	lb.	.41½	@	.42½
Hose	lb.	.41½	@	.42½
Enameling	lb.	.43	@	.49
Shoe Ducks	lb.	.48	@	.50
Single filling	lb.	.19½	@	.21
Double filling	lb.	.22½	@	.23

BURLAPS
(Carload Lots)

7½-ounce	40-inch	7.80	@	7.85
8 -ounce	40-inch	7.90	@	7.95
10 -ounce	40-inch	10.30	@	10.35
10½-ounce	40-inch	10.40	@	10.45

J. H. LANE & CO.

Tire Fabrics Cord Fabrics

Enameling Duck Drill Sheeting

Osnaburg and Special Constructions

250 W. 57 Street, NEW YORK 223 West Jackson Boulevard, CHICAGO

ALL THE LEADERS

Are represented in this section. Purchasing agents can rely on the concerns listed as thoroughly reliable in every way.

The Market Place

CRUDE RUBBER — All Grades. Washed - Dried - Milled.
Send us Your Inquiries.
Gibraltar Rubber Corp.
West New York, N. J.

FABRICS—Tire fabrics of every description, Sea Island, Egyptians, Peelers.
Taylor, Armitage & Eagles, Inc.
120 Broadway New York

LINERS — PROCESSED
For
Various Rubber Stocks
The Cleveland Liner & Mfg. Co.
5508 Maurice Ave., Cleveland, O.

DIPHENYLGUANIDINE
Aero Brand, product of the highest purity from dependable source of supply.
American Cyanamid Co.
511 Fifth Ave. New York City.

FABRICS—Stockinets, Jersey Cloth and Special Fabrics for the Rubber Industry.
U. S. Knitting Co., Inc,
Pawtucket, R. I.

MANDRELS--CIRCULAR
and Economy Calender Shells
Prompt Service—Let us quote you.
The Clyde E. Lowe Co.
2976 E. 81st St., Cleveland, Ohio

DRY KILN—for drying crude rubber and chemicals—Hunter Process.
Carrier Engineering Corporation
750 Frelinghuysen Ave. Newark, N. J.

FACTICE—Prevents blooming, makes colors fast and a smoother batch.
Stamford Rubber Supply Co.
Stamford, Conn.

MOLDS AND CORES—
Tire building equipment; general machine work.
The Akron Equipment Co.
Akron, Ohio

FABRICS—Tire fabrics, Egyptian—Peeler, Karded and Combed, Cord and Square.
Cabarrus Cotton Mills
(Cannon Mills, Inc.)
55 Worth St. New York
327 S. La Salle St. Chicago

GUAYULE—"Duro" Brand washed and dried ready for compounding.
Continental Rubber Co.
120 Broadway New York

MOLDS & CORES—Tire building machines; tire finishing stands; tubing machines; hydraulic presses.
The Akron Standard Mold Co.
Akron, Ohio

FABRICS—Spots and Contracts: Tire Fabrics, Enameling ducks, Tube Wrapping Tapes.
H. Frank Jones
395 Broadway New York City

HARD RUBBER, quality hard rubber goods of every description.
Vulcanized Rubber Co.
251 Fourth Ave. New York City

MOLDS & CORES—for automobile tires; general machine work.
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FABRICS—Tire fabrics—coarse builders, chafers, breakers in all grades.
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RECLAIMED RUBBER—
Uniformity, reliability, cleanliness.
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FABRICS—Tire, cords, enameling ducks, drills, sheetings, osnaburgs.
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RUBBER FACTORIES
use vast quantities of raw materials and equipment. Let the industry know how well you can serve it through a listing in this section.

RECLAIMED RUBBER—
for all purposes.
Rubber Regenerating Co.
Naugatuck, Conn.

THE MARKET PLACE Section Continued on Second Page Following.

Reclaimed Rubber

NEW YORK, Aug. 3, 1925

The instability of the scrap market has resulted in uncertain conditions among reclaimers and though prices for the various grades of reclaims are slightly lower today than they were a week ago, there is no assurance that they will not increase within a short time. Reclaimers are still working at capacity, and are sold ahead on some grades for a number of weeks. Demand from rubber manufacturers continues in good force. Quotations follow:

Friction (Uncured)				
No. 1	lb.	.50	@	.55
No. 2	lb.	.40	@	.45
High Tensile Black				
Super-Reclaim No. 1	lb.	.32	@	.34
" " No. 2	lb.	.19	@	.20
Shoe				
Unwashed	lb.	.10½	@	.11
Washed	lb.	.12¾	@	.13
Tube				
No. 1 (Floating)	lb.	.24	@	.25
No. 2 (Compounded)	lb.	.19	@	.20
Tires				
Black unwashed	lb.	.10¾	@	.11
Black, washed	lb.	.12½	@	.13
Dark Gray	lb.	.14½	@	.15
Light Gray	lb.	.17	@	.18
White	lb.	.23	@	.24
Truck	lb.	.10½	@	.11
Miscellaneous				
Mechanical Blends	lb.	.08	@	.09
Red, High Grade	lb.	.20½	@	.21

Scrap Rubber

NEW YORK, Aug. 3, 1925

Following the recent meeting of the Reclaimers Division of the Rubber Association at which it was decided that in view of the large stocks of scrap which were being held for higher prices, reclaimers have stayed out of the scrap market as much as possible with the result that scrap dealers have begun to release stocks at a much lower price. At these lower prices there was a considerable buying interest on the part of reclaimers. Prices follow:

Auto tire peelings		.02	@	.02¼
Standard White auto	ton	25.00	@	—
Mixed auto	ton	22.00	@	24.00
Bicycle tires	tons	10.00	@	11.00
Clean solid truck tires		33.00	@	36.00
Boots and shoes		.02	@	.02⅛
Arctics, untrimmed		.01	@	.01¼
Arctics, trimmed		.01⅜	@	.01½
Inner tubes, No. 1		.08	@	.08½
Inner tubes, compounded		.07	@	.07½
Inner tubes, red		.06¼	@	.06¾
Battery jars, clean hard rubber		.01	@	.01⅛
Air Brake Hose	ton	14.00	@	16.00
Rubber hose	ton	9.00	@	11.00

Crude Rubber

NEW YORK, Aug. 3, 1925

After a week of decline in rubber prices during which little real buying was done, the market is very quiet today resulting from a lack of London and Singapore cables. Saturday and today are holidays religiously observed in London and in the absence of definite prices, the local trading was almost at a standstill. Buyers who were bidding 95½ cents this morning are willing to bid 97 shortly after the noon recess but practically no business was done at this figure.

At the time of our last report two weeks ago, spot ribbed sheets were quoted at 1.11 and within a few days, for no apparent reason at all, unless it was the uncertainty of the amount of rubber to be exported on and after Aug. 1, the price rose to 1.23 on the 20th. The next day, however, prices took a temporary fall to 1.18 on receipt of easier cables from London. On the 22nd a rise of 3½ cents brought prices up to 1.21½ and buyers were showing more interest. The rule was for small lots to change hands.

Then started the decline from the above figure to the low of 89 cents which was reached on Thursday, the 30th. During all of last week London cables denoted a weakness which was hard to explain and it was immediately followed by the withdrawal of buying support on the New York market. The larger rubber factories stayed out of the market and refused to bid on a declining market while a few of the smaller factories showed a little more interest.

An increase to 96 cents took place the next day on the refusal of sellers to make lower quotation but no business was done in the expectation of a lower market after the bank holidays in London.

The feature of recent weeks has been the strength of the lower grades which have commanded, on a whole, prices several cents above their comparative worth.

The arrival of the Kansas was announced yesterday, just two days late to apply on July delivery. London stocks a week ago were reported at 4,014 tons, a reduction of only 35 tons over the previous week's figures. The firmness indicated by later reports today is probably the start of another rise, according to leading dealers in the industry. Quotations follow:

NEW YORK MARKET

(Monday A. M., Aug. 3)

Plantations—			
Ribbed Smoked Sheets			
Spot	.95½	@	.96
August	.95½	@	—
September	.91	@	—
Oct.-Dec.	.82	@	—
January-March	.77	@	—
First Latex, crepe spot	.95	@	—
Amber Crepe, No. 2, spot	.83	@	—
" " No. 3,	.82	@	—
" " No. 4,	.80	@	—
Brown Crepe, Rolled	.69	@	—
" " Clean, thin	.82	@	—
" " Specky	.81	@	—
Pontianac—			
Bangermassin	Nominal		
Palembang	Nominal		
Prime Pressed	Nominal		
Sarawak	Nominal		
Paras—			
Up-river Fine	.93	@	—
" Medium	.81	@	—
" Coarse	.61	@	—
Islands, Fine	.80	@	—
Acre Bolivian, fine	.93	@	—
Tapajos, fine	.88	@	—
Cut Beni Bolivian, fine	.89	@	—
Caucho Ball—			
Upper, shipment	.62	@	—
Centrals—			
Central, scrap, prime	.62	@	—
Corinto, scrap	.63	@	—
Esmeraldo, sausage	.63	@	—
Guayule, w and d	.63	@	—
Africans—			
Benguela, No. 2	Nominal		
Congo, upper, black	Nominal		
" " red	Nominal		
Kassai, Prime Red	Nominal		
Balata—			
Block, Columbia	.53	@	—
" Cuidad	.63	@	—
Surinam, sheet	.77	@	.78
Gutta Percha—			
Siak	.23	@	—
Red Macassar	2.80	@	3.00
Chicle—			
Mexican, Yucatan	.68	@	—

LONDON MARKET

(Friday, July 31)

Standard Ribbed Smoked Sheets—	
Spot	45½d
August	45¼
September	43¾
Oct.-December	38
Jan.-March	33

SINGAPORE MARKET

(Friday, July 31)

Standard Ribbed Smoked Sheets—	
Spot	41½d
August-Sept.	41⅛
Oct.-December	37
Jan.-March	32½

TIRE FABRICS
OF EVERY DESCRIPTION
TAYLOR, ARMITAGE & EAGLES Inc.
Equitable Building, 120 Broadway, New York
SEA ISLANDS EGYPTIANS PEELERS
FABRICS TO SPECIFICATION
AMERICAN COTTON FABRIC CORPORATION

The Market Place

RECLAIMED RUBBER
A standardized grade for every requirement.
U. S. Rubber Reclaiming Co., Inc.
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"42 Years Serving the Industry Solely as Reclaimers"

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Places your products among the leaders in the field!

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50 to 90 Per Cent Recovery
Spadone Machine Co., Inc.
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Exclusive Selling Agents for
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TRIMMERS—OVERFLOW
For Heels, Soles and Mechanical Rubber Goods.
Designers of Special Machinery
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RUBBER SCRAP
Always Buying and Selling
Rubber Waste, Cured and Uncured, Hard Rubber, Balata, Gutta Percha.
HERMAN WEBER
Newark & Jackson Sts., Hoboken, N. J.

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For cutting all rubber, composition and plain or impregnated fabrics.
Cameron Machine Co.
61 Poplar St., Brooklyn, N. Y.

USED MACHINERY
Mills, Calenders, Grinders, Washers
New and Old Rubber Scrap
Rubber Cloth Remnants
M. Norton & Co.
Locust St. Medford, Mass.

RUBBER SUBSTITUTES
White, brown and black.
Carter Bell Mfg. Co.
150 Nassau St. New York

SULPHUR—*"Tire"* Brand Superfine; *"Tube"* Brand Velvet; quality Sulphur for the rubber trade.
Stauffer Chemical Co.,
of Texas.
Scanlon Bldg. Houston, Texas
San Francisco, Cal. Chauncey, N. Y.

WHITING & PARIS WHITE
manufactured from *Genuine English Chalk* and *Cliffstone*—no adulterations.
Southwark Mfg. Co.
Camden New Jersey

RUBBER SUBSTITUTES
All grades — Samples furnished.
Manufactured by
The Westminster Chemical Co.
531 South Peoria St. Chicago

TAR—PINE, RETORT, KILN
All grades for the rubber manufacturer.
Pensacola Tar and Turpentine Co.
Gull Point, Florida

ZINC OXIDES—A Z O, the Super Zinc.
American Zinc Sales Co.
P. O. Box 1428 Columbus, O.
Pierce Bldg. St. Louis
Prudence Bldg. New York

SANITARY GOODS —
Dress Shields, Reducing Garments, Sheetings, Aprons, Bathing Caps, etc.
I. B. Kleinert Rubber Co.
485 Fifth Ave., N. Y. City

TECHNOLOGIST — Testing, formulae, costs, litigation, experimental work on all classes of rubber products.
Fred'k. J. Maywald, F.C.S.
5 William St., Belleville, N. J.

ZINC OXIDES — Including KADOX and "Albalith."
The New Jersey Zinc Sales Company
New York Pittsburgh Chicago
Cleveland San Francisco

CHEMICALS & COMPOUNDING INGREDIENTS

Accelerators — Colors — M.R. — Compounding Ingredients Softeners — Vulcanizing Ingredients — Rubber Substitutes

NEW YORK, Aug. 3, 1925—Many of the suppliers of raw materials used in rubber factories are expressing surprise at the continued high production in the industry with the resultant demand for materials. The larger tire manufacturers are making requests for larger shipments than was the rule even several months back thus indicating to some that the expected let-up in tire production is still several weeks off, if that close. Prices have been firm with but few minor changes noted. Higher prices of crude rubber have in many cases resulted in the use of compounds which would enable manufacturers to maintain quality and reduce costs. Quotations follow:

ACCELERATORS

Organic			
Aldehyde ammonia, crystals	lb.	$ .90	@ .93
Aniline oil, drums	lb.	.17	@ .17½
Di-Ortho-Tolylguanidine	lb.	1.10	@ 1.13
Diphenylguanidine	lb.	.95	@ .98
Ethylidene aniline	lb.	.60	@ .65
Excellerex	lb.	.29	@ .32
Formaldehyde-Aniline	lb.	.40	@ .42½
Hexame.hylene-tetramine	lb.	.80	@ .82½
Paraphenylenediamine	lb.	1.25	@ 1.30
Piperidine-Piperidyldithio-Carbamate	lb.	4.80	@ 5.00
Super-Sulphur No. 1	lb.	.50	@ .55
Super-Sulphur No. 2	lb.	.18	@ .30
Tensilac, No. 41	lb.	.65	@ —
Tuads	lb.	4.50	@ 5.00
Thiocarbanilide, kegs	lb.	.24	@ .30
Triphenylguanidine	lb.	.70	@ .75
Vulcone	lb.	.75	@ .79
Zimate	lb.	5.00	@ —
Inorganic			
Lead, sublimed blue	lb.	.10	@ —
Lead, white	lb.	.09½	@ —
Litharge, domestic	lb.	.11	@ —
Lime, superfine	lb.	.01½	@ .02
Magnesia, calcined, light	lb.	.24	@ .25
extra light	lb.	.40	@ .45
heavy	lb.	.04	@ .06½

COLORS

Blacks			
Arrow "Aerfloted"	lb.	.07	@ .11
Bone Black	lb.	.05½	@ .09
Carbon "	lb.	.07	@ .11
Drop "	lb.	.07½	@ .14
Ivory "	lb.	.12	@ .45
Lamp "	lb.	.12	@ .40
Micronex	lb.	.08	@ .12
Thermatomic carbon	lb.	.04	@ .08
Blues			
Cobalt	lb.	.21	@ .26
Prussian	lb.	.34	@ .35
Ultramarine	lb.	.08	@ .35
Browns			
Iron oxide	lb.	.02¼	@ .06¼
Sienna, Italian	lb.	.04	@ .14
Umber, Turkey	lb.	.04	@ .06
Vandyke, domestic	lb.	.03	@ .03½
Greens			
Chrome, light	lb.	.28	@ .29
medium	lb.	.30	@ .31
dark	lb.	.32	@ .34
commercial	lb.	.09	@ .10
Chromium Oxide, bbl.	lb.	.33	@ .35
Reds			
Antimony crimson, 15/17 F.S.	lb.	.43	@ .45
sulphur free	lb.	.45	@ —
golden, 15/17 F.S.	lb.	.17	@ —
pentasulphide, pure,	lb.	.35	@ .38
15/17 F.S.	lb.	.33	@ .36
red sulph.15-17F.S.	lb.	.16	@ .20
Indian English	lb.	.11	@ .15
Oximony	lb.	.13½	@ —
Para toner	lb.	.90	@ 1.00
commercial	lb.	.13½	@ .14½
Red oxide, reduced	lb.	.04	@ .12
pure	lb.	.12	@ .14
Toluidine toner	lb.	1.85	@ 2.10
Venetian red	lb.	.01½	@ .05
Vermillion, quicksilver, English	lb.	1.40	@ 1.50
domestic	lb.	.15	@ .25
Whites			
Albalith	lb.	.06¾	@ .06¾
Aluminum bronze		.60	@ 1.25
Lithopone, Akcolith	lb.	.06	@ .06½
Lithopone, Azolith	lb.	.05¾	@ .06¼
Zinc Oxide—American Process XX red	lb.	.07¾	@ .08¼
Kadox, black label, kegs	lb.	.10¾	@ .11¼
blue " " "		.09⅝	@ .10⅛
red " " "		.08⅝	@ .09⅛
American Azo: ZZZ (lead free)	lb.	.07¼	@ .07¾
ZZ (under 5% leaded)	lb.	.07	@ .07½
Z (5-10% leaded)	lb.	.06¾	@ .07¼
Zinc Oxide—French Process White seal	lb.	.12	@ .12¼
Green seal	lb.	.10¾	@ .11¼
Red seal	lb.	.09¾	@ .10¼
Yellows			
Chrome, light		.17½	@ .18½
dark and medium	lb.	.18	@ .18½
Cadmium Sulphide	lb.	2.00	@ 2.50
Ocher, French medium	lb.	.02½	@ .02⅝
domestic	lb.	.01½	@ .02½

COMPOUNDING INGREDIENTS

Aluminum Flake (f.o.b. plant)	ton	21.85	@ 24.50
hydrate light	lb.	.17	@ .18
Ammonia carbonate	lb.	.13	@ .15
Asbestine	ton	18.00	@ 20.00
Barium carbonate	ton	54.00	@ 56.00
Barium Dust	lb.	.05	@ .06
Barytes southern off-color,	ton	12.00	@ 18.00
Western prime white	ton	22.00	@ 23.00
imported	ton	27.00	@ 35.00
Basofor	lb.	.04½	@ —
Blanc fixe, dry f.o.b. works	lb.	.04	@ .04¼
Carrara filler	lb.	.01¾	@ .02
Chalk, precip., extra light	lb.	.04¼	@ .05
heavy	lb.	.03¼	@ .04
Clay, China, domestic	ton	13.00	@ 22.00
Catalpo (fact.)	ton	35.00	@ 40.00
Dixie	ton	20.00	@ 35.00
Blue Ridge, Dark	ton	9.00	@ —
" " Light	ton	12.00	@ —
Langford	ton	12.00	@ 22.00
Glues, extra white	lb.	.21	@ .29
medium white	lb.	.18	@ .24
common bone	lb.	.11	@ .14
Graphite flake, bbls.	lb.	.06½	@ .12
Infusorial earth, powdered	ton	23.00	@ 25.00
bolted	ton	15.00	@ 20.00
Liquid latex	gal.	2.75	@ —
Magnesia, carbonate	lb.	.08¼	@ .09
Mica, powdered	ton	65.00	@ 80.00
Rotten Stone (powdered)	lb.	.02½	@ .04½
Soapstone, powdered	ton	15.00	@ 22.00
Starch, powdered	cwt.	4.07	@ 4.55
Talc, domestic	ton	16.00	@ 18.00
Terra Alba	cwt.	1.25	@ 2.00
Tripoli, white	lb.	.02	@ .02¼
Whiting, commercial	cwt.	1.00	@ 1.15
gilder's bolted	cwt.	1.25	@ 1.35
English cliffstone	cwt.	1.50	@ —
Paris whiteAmerican	cwt.	1.50	@ 1.75
Quaker	ton	13.00	@ 15.00
Sussex	ton	8.00	@ 10.00
Wood pulp XXX	ton	35.00	@ —
" " X	ton	25.00	@ —

MINERAL RUBBER

Genasco (factory)	ton	50.00	@ 52.00
Granulated M.R.	ton	35.00	@ 45.00
Hydrocarbon, Hard	ton	29.00	@ 35.00
Hydrocarbon, Soft	ton	29.00	@ 35.00
320/340 M.P. hydrocarbon (c. l. factory)	ton	47.00	@ 52.00
300/310 M.P. hydrocarbon (c. l. factory)	ton	42.00	@ 47.00
Paradura	ton	65.00	@ 75.00
Robertson, MR, solid	ton	35.00	@ 75.00
M.R. (gran)	ton	42.00	@ 80.00

SOFTENERS

Acids			
Acetic, 28%	cwt.	3.00	@ 3.25
Cresylic, 97%	gal.	.59	@ .63
95%		.56	@ .60
Muriatic, 20%	cwt.	.90	@ 1.00
Nitric, 36 degrees	cwt.	4.50	@ 4.75
Sulphuric, 60 degrees	ton	10.00	@ 11.00
66 degrees	ton	14.00	@ 15.00
Tartaric, crystals	lb.	.29	@ —
Alkalies			
Caustic soda, 76%	cwt.	3.60	@ —
Soda ash, 58% C.L.	cwt.	1.43	@ 1.45½
Oils			
Castor, No. 3, bbls.	lb.	.16	@ —
Corn, crude, bbls.	lb.	.12¼	@ —
refined	lb.	.13	@ ¼
Cottonseed, crude		.09¾	@ —
Glycerine C.P. drums	lb.	.19	@ .19½
Linseed, Raw C.L.bbl.	gal.	98	@ —
Palm, Niger	lb.	.09⅛	@ .09¼
Lagos	lb.	.09⅛	@ .09¼
Peanut,domestic,crude	lb.	.13	@ —
Petrolatum, white		.11	@ .11½
amber		.03⅝	@ .03¾
dark amber	lb.	.03⅜	@ .03½
Pine, steam distilled	lb.	.65	@ .66
Rapeseed, refined	gal.	1.05	@ —
blown	gal.	1.05	@ —
Rosin, first rectified	gal.	.58	@ .60
second rectified	gal.	.61	@ .63
Soya Bean, crude		.13¼	@ .13⅜
Tar, commercial	gal.	.30	@ .32
Resins and Pitches			
Parra M.R.	lb.	.06	@ .07
Tar Retort	bbl.	15.00	@ —
kiln burned	bbl.	15.50	@ —
Pitch, Burgundy	lb.	.06	@ .06½
coal tar	gal.	.05½	@ .06
pine	bbl.	6.00	@ 6.50
Rosin, grade K	bbl.	10.35	@ —
Solvents			
Alcohol, denatured, No. 1 bbls.	gal.	.52½	@ .56½
Benzol, 90%	gal.	.22	@ —
pure		.24	@ —
Carbon bisulphide	lb.	.06½	@ .07½
tetrachloride	gal.	.07⅛	@ .08
Dimethylaniline	lb.	.48	@ .50
Motor gasoline, steel bbls.	gal.	.22	@ —
Naptha, V. M. & P.	gal.	.21½	@ —
Toluene	gal.	.26	@ —
Turpentine, spirits	gal.	.97	@ .99
wood	gal.	.85	@ .90
Waxes			
Beeswax	lb.	.55	@ .65
Carnauba, No. 1	lb.	.38	@ .39
Ceresin, white	lb.	.10	@ .11
Montan, crude	lb.	.06	@ .06½
Ozokerite, black	lb.	.24	@ .25
green	lb.	.26	@ .30
ParaffineWhite,A.M.P.	lb.	.06	@ .06⅛
Yellow A.M.P.	lb.	.06¼	@ .06¾
Sweet wax	lb.	.12	@ —

SUBSTITUTES

Black	lb.	.08	@ .15
White	lb.	.09½	@ .16½
Brown	lb.	.10	@ .15
Brown factice	lb.	.09	@ .18
White factice	lb.	.09½	@ .16½

VULCANIZING INGREDIENTS

Black hyposulphite	lb.	.18	@ .20
Ethyl Chloride, Cyl.	lb.	.55	@ —
" " Drums	lb.	.45	@ —
Sulphur Chloride (drums)	lb.	.04½	@ .06
Sulphur flour Commercial bags	cwt.	1.35	@ 1.70
" bbls.	cwt.	1.70	@ —
Superfine, bags	cwt.	2.20	@ 2.50
" bbls.	cwt.	2.60	@ 2.90
100% pure, refined, bags	cwt.	2.35	@ 2.65
bbls.	cwt.	2.60	@ 2.90

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This Weeks News

- *this week*

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TECHNICAL ABSTRACTS

Mechanical **Chemical** **Physical**

Vulcanizing Rubber

In order to accelerate the vulcanization of rubber, about two per cent of zinc alpha phenyl biguanide is added. This substance is obtained by heating a mixture of alpha phenyl biguanide and zinc oxide, or by precipitating from a solution alpha phenyl biguanide or its carbonate or carbamate with an alkaline zincate. Alternatively alpha pheyl biguanide may be heated with zinc hydrate, with or without alkali; or a solution of hydrochloride, sulphate, nitrate, carbonate, or carbamate of alpha phenyl biguanide may be heated with a soluble zinc salt and excess of caustic alkali. The accelerator is insoluble in cold water, soluble in boiling alcohol and melts at a temperature of 190 degrees C. British Patent No. 225,866.

New Variety of Rubber

A report from Zurich, Switzerland, states that a new variety of rubber has been developed by exposing ordinary rubber to the action of hydrogen under a pressure of 80 to 100 atmospheres at a temperature of 270 degrees C with the use of platinum as a catalyst. The new product, which is called cyclocaoutchouc, has a composition which is expressed by the formula $(C_5H_{10})_x$, as compared with the formula $(C_5H_8)_x$ for ordinary rubber. It is therefore a hydro-rubber. The new substance is more stable than the natural rubber and requires a temperature of 350 degrees C for its decomposition. The products of this decomposition are of great interest and throw much valuable light both on the structure of the rubber molecule and on the available methods for successfully manufacturing synthetic rubber.

Comparative Study of Accelerators

***Journal of the Society of Chemical Industry*, 1925, 100 to 106**

An interesting study of several accelerators is published in the *Journal of the Society of Chemical Industry*, 1925, pages 100 to 106.

It is stated therein that although the transition of accelerators is more or less gradual, vulcanization accelerators can be classed either as "persistent" or "fugitive." Both inorganic and organic members are found in each class. The phenomenon of "plateau effect" in vulcanization may be induced by an accelerator through an abnormally early development of tensile strength in the rubber, by a "depolymerizing" effect of the accelerator, or by its "fugitive" behavior. If the accelerator disappears too rapidly its effectiveness may be impaired; this explains, for example, the ineffectiveness of zinc methylxanthate relative to its homologues.

Theory of Rubber Vulcanization

The physical alteration brought about by vulcanization is probably dependent in the first place on a polymerization of the bulk of the rubber induced by the chemical reaction between the sulphur and a small proportion of the rubber, and in the second place on the reinforcing effect of the product of this chemical reaction, finely dispersed throughout the mass of the rubber. It is thought that the latter effect probably predominates. The changes that are observed in the "overheating" and "reclaiming" of vulcanized rubber probably involve the growth of these dispersed particles. *Journal of the Society of Chemical Industry*, 1925, pages 106 to 108T.

Vulcanization of Rubber

British Patent No. 229,491

Dissolved rubber is vulcanized by the interaction of sulphuretted hydrogen and sulphur dioxide in the rubber solution in the presence of 1-2 naphthoquinone (1-2 $C_{10}H_6O_2$) or toluquinone ($CH_3C_6H_3O_2$). The use of a small amount of naphthoquinone produces considerable acceleration of vulcanization, an dthe use of toluquinone produces a milder acceleration. Both of these reagents tend to reduce the quantity of free sulphur in the product. In an example a ten per cent solution of rubber in naphtha was saturated with hydrogen sulphide and then mixed with four per cent of a two and one half per cent solution of sulphur dioxide in benzene. This mixture set within a period of 40 minutes. A similar rubber solution which was saturated with hydrogen sulphide was mixed with 15 per cent of a 0.7 per cent solution of 1-2 naphthoquinone in benzene, and the sulphur dioxide solution was then added. This mixture set in nine minutes.

Changes During Hot Vulcanization

***Kolloid Zeitung*, Vol. 34, Page 297**

It has been observed that in the course of vulcanization at elevated temperatures a change takes place in the solubility, mechanical properties, and viscosity of rubber. It is most easy to study the variations in the solubility of the rubber. The rubber samples are cut up into small pieces and are extracted for eight hours in a Soxhlet apparatus with the aid of acetone, then for an additional period of eight hours with chloroform. The acetone removes the resins and the soluble sulphur. The chloroform removes the soluble rubber. Chloroform is preferable to benzene and ether for this extraction.

When 100 parts of Para sulphur are mixed well with 10 parts of sulphur, which is in a state of fine sub-division, and when the mixture is heated to a temperature of 140 degrees C, the solubility of the vulcanized rubber varies in the following manner. When the heating has been prolonged for a period of 16 minutes, the solubility is 100 per cent. At the end of a period of 20 minutes' heating the solubility is 6.66 per cent, at the end of 22 minutes, it is 4.53 per cent, from 28 to 32 minutes it is greater than 10 per cent and after 80 minutes of heating the solubility is 3.24 per cent.

This variation shows that the vulcanization process is composed of three distinct parts. The first phase of vulcanization renders almost the entire mass of the rubber insoluble. In the second stage the rubber becomes more soluble and in the third stage the solubility of the rubber decreases once again.

When the proportions of sulphur are two, four, eight and ten parts per hundred parts of rubber, and when the temperature at which vulcanization takes place is 140 degrees C, the speed at which the change in the condition of the rubber is effected is approximately inversely proportional to the concentration of the sulphur.

A mixture of 100 parts of rubber and five parts of sulphur is vulcanized at various temperatures, as follows, 145, 140, 135, 130 and 125 degrees C. The results obtained from this experiment show that an increase in the temperature of vulcanization increases the speed at which the process takes place.

A rubber mixture, containing 100 parts of rubber, five parts of sulphur and five parts of lead oxide, is vulcanized at a temperature of 125 degrees C. The vulcanizing action is more rapid than when the same mixture is vulcanized at a temperature of 145 degrees C without the addition of lead oxide. In all cases a reduction in the solubility of the rubber in choloform takes place, followed by an increase in solubility and later by a reduction.

Experiments which were carried out to determine the viscosity of rubber solutions indicated that the colloidal suspensions of para rubber, in the pure state, became less viscuous when they were heated to a temperature of 145 degrees C. When a mixture of ten parts of sulphur with 100 parts of para rubber is heated to a temperature of 140 degrees C, the viscosity of the suspension is tripled within a period of fifteen minutes.